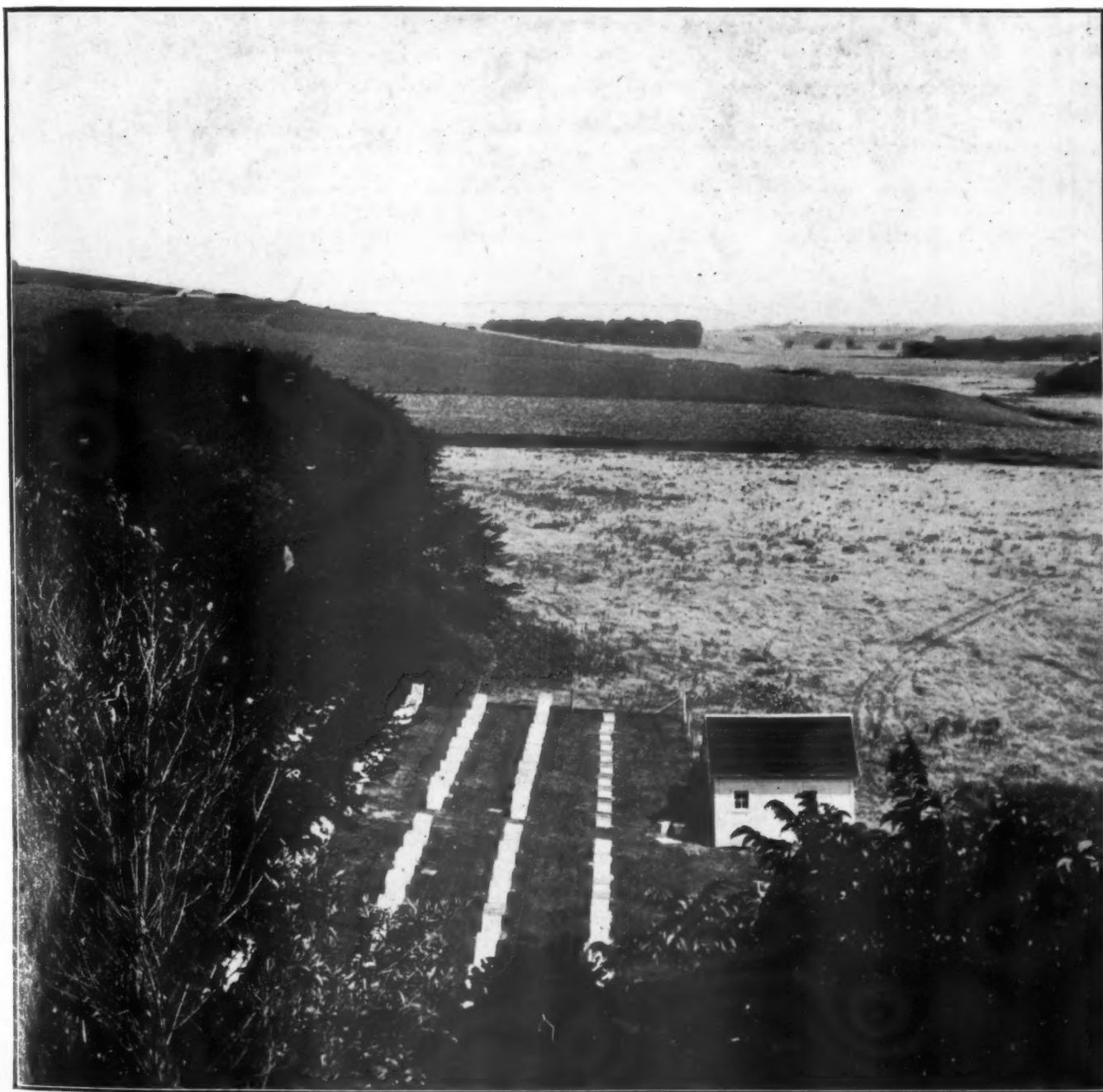


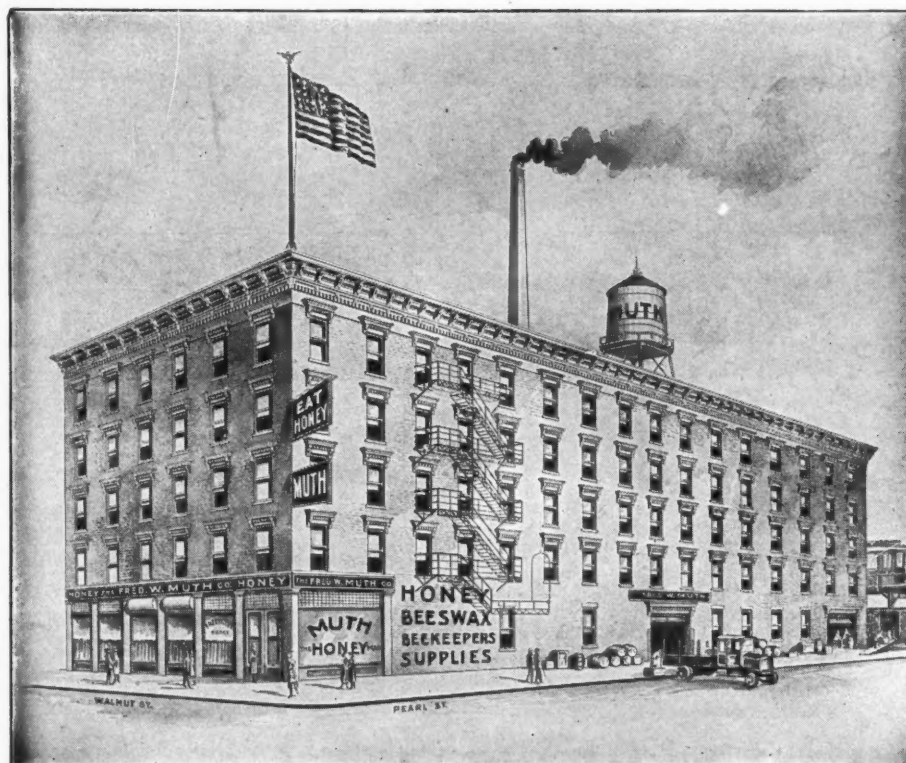
AMERICAN BEE JOURNAL

OCTOBER, 1919



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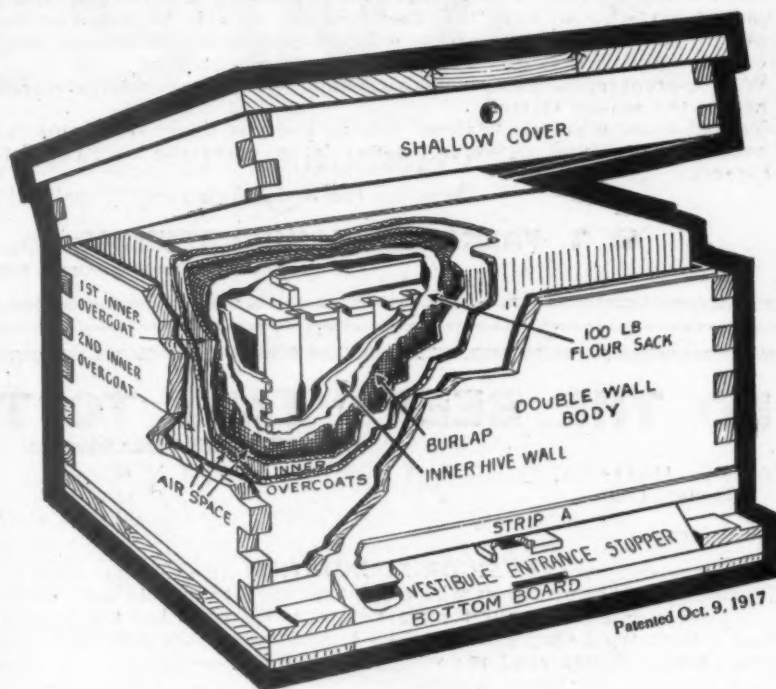
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(APIARY DEPT.)

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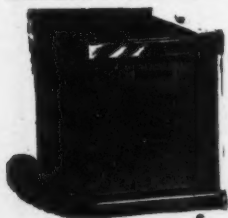
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VOL. LIX—NO. 10

HAMILTON, ILL., OCTOBER, 1919

MONTHLY, \$1.00 A YEAR

BEEKEEPING IN THE MISSOURI RIVER HILLS

Glimpses of Conditions in the Sweet Clover Region of Northwest Iowa and Southeastern South Dakota---By Frank C. Pellett

SWEET clover is coming into its own in northwest Iowa. In the region about Sioux City there are thousands of acres covering the hills and stopping the erosion that would otherwise be cutting away some of the rich farms of that section. I have visited the famous sweet clover belt at Falmouth, Ky.; I have ridden for many miles through the finest sweet clover territory in the Arkansas River Valley and have seen many sweet clover districts of lesser fame, but nowhere have I seen finer sweet clover fields than in northwest Iowa, roundabout Sioux City. Bordering the river at this point is a wide range of hills of rich loess soil. The soil is very productive, but with continuous cultivation the humus content is rapidly removed. When this condition develops, the fields are badly damaged by heavy rain. Erosion is much more difficult to control on steep hillsides than on the gentle slopes. The farmers have learned that in order to prevent the washing of the land they must bring some crop into their rotation that provides a liberal supply of humus, or decayed vegetable matter to hold the soil. Sweet clover is ideal for this purpose, for it is a vigorous and rapid grower. In addition it greatly enriches the soil with a wealth of nitrogen gathered from the air and stored in the earth through the medium of the bacteria living in the nodules which grow on its roots.

The ideal location for the beekeeper is one where the farmers require some good honey-plant in their system of agriculture. In the sections where there is a large acreage of white clover pasture, alsike clover or alfalfa grown largely for seed, or where sweet clover is generally

grown as a field crop, we find prosperous beekeepers.

In the immediate vicinity of Sioux City there are so many amateur beekeepers that the commercial beekeeper has much to contend with in the way of fighting disease. American and European foulbrood are both present and the beekeeper must be constantly on the alert to keep disease under control. Farther out, however in the direction of Vermillion, S. Dak., there are less bees present and some apparently ideal locations not occupied. In the vicinity of a large city, we nearly always find disease much worse. Just why this is true we can only surmise. It is

generally credited to the fact that much honey is shipped in to supply the markets, that there is more or less exposure of discarded sections and empty containers which are thrown into the alley or garbage can without being washed. The fact that there are so many people with a few bees in a limited area makes it very difficult to eradicate disease, once it gets a foothold. We do know that disease has long been established in the vicinity of nearly every large city which is a market center for honey. As far as can be ascertained it has never been eradicated from the vicinity of one of these centers after once becoming established. In



Near view of the Wilson apiary shown on our cover.

such a location the beekeeper must take the manipulation necessary to control of disease as a matter of course and give it the same attention that he finds necessary with swarm control or other timely activity.

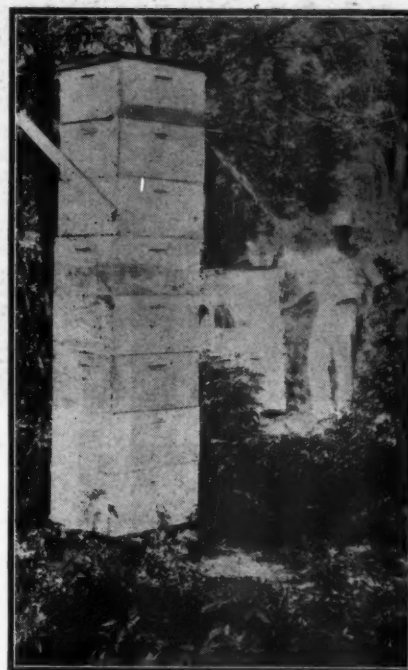
With the extension of the sweet clover area, there has grown up an organization of beekeepers known as "The Western Honey Producers' Association," which handles a large part of the honey produced in that region. There seems to be a general impression that they are dealers rather than producers. While, as a matter of course, they do purchase a great deal of honey in the open market to supply their trade, they are essentially producers. They are very probably the most extensive producers of honey in Iowa, if not the Middle West. At the time of my visit, in July, the sweet clover flow was just on and they were operating twelve hundred colonies of bees within a radius of about twenty miles of Sioux City.

Seven or eight years ago the idea of an organization of honey producers who should market their own product through a central packing plant was conceived by E. G. Brown and Thomas Chantry, living at that time near Salix. W. P. Southworth, also a beekeeper of that locality, was interested in the plan, and they started out to form such an organization. As with most co-operative ideas, there was difficulty in holding the producers together, and while several manifested a good deal of interest for a time, they failed to stick. Chantry moved to Utah, leaving Southworth and Brown as the sole survivors of the party who started out to form their own marketing organization.

Brown had been a beekeeper since infancy, his father having been one of the first commercial honey producers in the Middle West. When Ed was 16 he left school to take charge of the bees. From that day

till this he has been a honey producer and has seen all the ups and downs of the business, from a big crop and no market, to a big market and no crop. Southworth was a merchant for a long time and kept bees as a side line. As his bees increased he became more impressed with the possibilities of the business. His mercantile experience stood him in good stead when it came to marketing the crops. The packing plant had not long been in operation, when it became apparent that, in order to market their own product to good advantage, they must be able to supply their trade with honey through the entire year. This involved buying honey and packing under their own label to insure that they would be able to fill all orders promptly as received. One serious obstacle in establishing honey as a staple article has been the difficulty of providing a dependable supply. The grocer does not care to waste his time creating a demand for a product that he will not be able to supply more than six months in the year. In the past the beekeepers have sold their crop as quickly as possible after it was produced. This made a dull market at one season of the year with a bare one at another. The man who starts out to supply a regular trade soon learns that he can't get very far without being able to supply the demand constantly.

As the trade in bottled honey grew it seemed desirable to secure better railroad facilities and other conveniences lacking in a small town. They accordingly moved to Sioux City and last year erected a fine building with the latest equipment for bottling honey. The filling of the packages is done by machinery which weighs the contents exactly. Even the labels are pasted on the pails by machinery. With their own plant in operation, the handling of supplies along with honey was a very natural step. With twelve hundred colonies of bees of their own and a much



Hospital colony where brood from colonies with foulbrood is piled up till all has emerged.

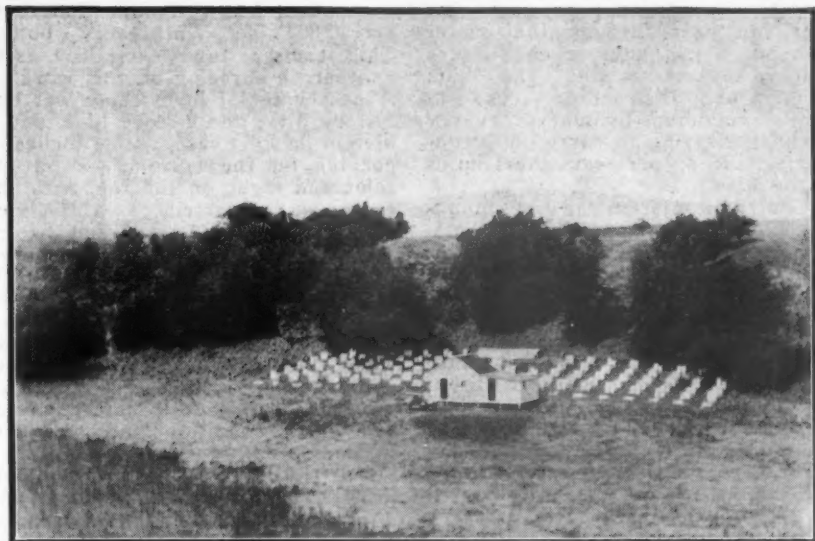
greater expansion contemplated, their own orders for supplies are such that it pays to buy in carlots. What more natural then than to supply the many beekeepers in the vicinity of Sioux City?

Although Southworth and Brown are all that remain of the original members of the enterprise, others have associated with them since that time. Among them should be mentioned C. S. Engle, formerly of Beville, Texas, and C. E. Kautz, formerly of Brighton, Iowa. Both are experienced and practical beekeepers who are now in charge of part of the company apiaries. Each man has charge of a certain number of apiaries for which he is individually responsible. Sweet clover is grown so extensively that many of their locations will support from 100 to 200 or more colonies of bees. The great difficulty is not in finding pasture but in securing a location in an accessible place, and also in getting far enough from disease centers that the bees are not reinfected with foulbrood with discouraging frequency.

Since foulbrood is so thoroughly established in every direction the best they can do is to get locations as far from other bees as possible and then be constantly on the watch for it. At the time of my visit Engle was treating a few colonies where it was of recent development. It is never allowed to advance far in any colony. The colony is treated before it becomes weakened, this making a minimum of loss with each case. His method was to shake the bees with queen onto full sheets of foundation. An excluder was placed above the hive and the brood-nest replaced. After an hour or two, when the bees had become quiet, he removed the brood-chamber and car-



One of the Western Honey Producers' outyards.



Apiary seen from the hilltop.

ried it to a hospital colony. In this way he took away all the honey, and since the bees had the brood for a short time after shaking, there was less danger of swarming out. The brood from all colonies treated was stacked up several stories high to hatch out. The picture shows one of these piles. In about three weeks all the brood will have emerged and there will be bees enough to make a booming colony. In the background can be seen a hive four stories high. This is the result of shaking one of these hospital colonies. On opening it we found that four stories of foundation had been drawn in three days and filled with honey. Foulbrood insures expert beekeepers, as otherwise it is impossible to continue the business, and make it profitable. The fly in the ointment is the sideline who does not have to make his few colonies pay, and when they die catches another stray swarm and starts again. There are always enough of such in the vicinity of every large city to perpetuate the disease.

When I visit the big producers I am always interested to see how they cut out unnecessary labor and equipment. The bigger the concern in every line of business, the more important it becomes to eliminate every unnecessary item of either investment or labor. Too much "overhead" has ruined many a good business. With a series of outyards there are numerous problems not met with the one apiary man. There is always the possibility of a move being necessary. Hive-stands and honey-houses are desirable at every apiary, yet they are not easy to move. Most beekeepers make shift with bricks or pieces of board at outyards. Such stands require constant fussing to keep the hives in position. The members of this firm have a special hive-stand that is cheap, durable, light and easy to move. They cut a good grade of composition roofing into strips four feet long. Under each strip are placed two strips of board in the right position to support both the

front and back of the hives. Over the boards is placed the roofing, each piece making a stand for two colonies of bees. Such a stand serves as well as concrete for keeping down weeds and grass and costs but a small sum. If the apiary is to be moved, a hundred of them makes but a small pile in the wagon or truck.

They also build good houses, as will be seen by the picture. This building is typical of those being built at each of their yards. It is 16x24, providing sufficient room for extracting, or storing of supers and supplies. It is built of good material and the frame is built in 8-foot sections. It is thus possible to take it down and move it at slight expense. Where the 8-foot sections come together there are two studs or rafters, as the case may be. These are fastened together with bolts. In taking down the building, the bolts are removed and the siding cut down with a saw. The same applies to the floor. In the new location the sections are

replaced in the position occupied prior to the move. In this way it is possible to enjoy the advantage of a roomy and comfortable building, without feeling that it will be a loss in case it becomes necessary to move the apiary.

None of the members of this firm likes to see poor beekeeping in the vicinity. As is usually the case, a number of farmers have apiaries near by which are more or less neglected. Where a man has bees enough to justify them, they care for these apiaries on a share basis, the farmer furnishing necessary equipment to put the bees into first-class condition. In one case they paid the farmer \$2,500 in three years as his share of the output of an apiary which numbered 50 colonies to begin with. It is needless to state that this particular farmer has acquired a different attitude toward the possibilities of beekeeping.

One of our illustrations shows as neat and attractive an apiary as is to be found in the entire State of Iowa. It was formerly one of the company yards, but has lately been sold to a young man, James Wilson by name, who was for a long time an employe of the concern. The same apiary is shown on our cover, as it appears from the top of the nearby bluff.

The Western Honey Producers' Association has grown up from a small beginning. It was founded on the idea that production and marketing could profitably be combined in the same organization. While there has been the usual struggle, common to establishing any new business enterprise, if one is to judge from the appearance of their fine new building, to which a third story will shortly be added to care for the growing business, of the many apiaries with hives piled two to four stories high and rapidly filling with honey, the concern will shortly grow into one of the really big enterprises



Bottling and packing plant of the Western Honey Producers' Association.

of its kind. At the time of my visit there was an excellent prospect for an average yield of 200 pounds per colony of sweet clover honey, and I was informed that such a yield is not unusual with them.

The Value of Winter Protection for Bees

By J. H. Merrill

IT is not difficult to circulate and have accepted a rumor such as "A bee will not sting you if you hold your breath," yet a fact which may be applied to practical beekeeping must be accompanied by abundant proof.

Dr. Phillips has given us, clearly, the reasons why bees should be given protection during the winter months. In spite of this, there are always plenty of people who have seen strong colonies in the spring that have wintered in cracker boxes, in hives large enough to thrust your hand in, and with no winter protection whatsoever. In fact, these colonies were so strong that they clearly proved to the satisfaction of the beekeeper that there is no need of taking any precautions for wintering bees in his locality. Another bugbear, which is frequently heard, is that there is "no need of winter protection in our locality, because we have such open winters." Some of the figures which will be given later deal directly with this point and seem to tell a very clear story.

Briefly summarized, the reasons given by Dr. Phillips why bees need winter protection are: (1) Bees are like storage batteries, containing a given amount of energy, which once expended is gone. (2) The bee is a cold-blooded animal and can raise the temperature within the hive only by consuming honey, thus transforming energy into heat, and by muscular activities. (3) When the temperature falls to 57 the bees form a cluster, with those in the center busily engaged in raising the temperature by muscular exertion. (4) If

wintering conditions are such that bees can pass through the winter with but a minimum expenditure of energy in maintaining the high temperature, then these bees will have a maximum amount of energy left in the spring to carry on brood-rearing and to perform other duties in the hive.

(Contribution from the Entomological Laboratory, Kansas State Agricultural College, No. 47. This paper embodies some of the results obtained in the prosecution of project No. 126 of the Kansas Experiment Station.)

A colony that may have gone into winter quarters in good condition and appears, early in the spring, to be a strong colony, yet that has passed the winter under adverse circumstances, consuming its energy in maintaining a high temperature, will have but little energy left to carry on its spring duties.

Acting upon the theory that the best method of wintering was the one that would produce the largest number of bees at the time when the honey-flow really began, experiments have been conducted at the Kansas State Agricultural College to try to determine this point.

For the purpose of this experiment two sets of hives were used, one of which was placed in a spot sheltered by a fine natural windbreak composed of dense shrubs. The other set of hives was placed in the open where it received no protection from any windbreak. The queens in all of these hives were of the same age, produced from the same stock, and introduced the same day. As nearly as possible, the strength of these colonies was about equal in the fall of 1917. The amount of stores in each hive varied from thirty-five to forty pounds. In the fall, at the time when the bees were prepared for winter, a rather complicated system of weighing, which it is not necessary to explain here, was made to determine the exact amount of honey and the exact number of bees in each hive. For the purpose of this

experiment it is estimated that there are 5,000 bees in every pound. This seems as fair to one hive as to another, in carrying on this work.

In each set of hives there was one 1-story hive, one 2-story hive, and a hive in packing case, with 4 inches of packing on the bottom, six on the sides and eight on the top, with the entrance contracted to a $1\frac{3}{8}$ -inch augur hole. The 1-story and 2-story hives had no packing whatsoever. Each of these hives was placed on a scale and daily readings of the weights were taken throughout each winter. In the spring of the year when the honey-flow had really begun, another complicated system of weighing was made to determine under which condition the strongest colonies were produced.

It is the intention to carry on this work over a number of years, and it is admitted that a larger number of hives would be preferable to the small number which are used. However, the general trend of results has been the same over each of the two years, and so marked as to indicate strongly what are the best wintering conditions for such a climate as is found in this locality.

During the winter of 1917-18, the average daily consumption of honey for the six hives for a period of 139 days, was half an ounce. During the winter of 1918-19, the average daily consumption of honey for the six hives for a period of 150 days was one-eighth of an ounce. During the early part of the winter of 1917-18, the consumption of honey was not very great. However, in January the amount of honey consumed was greatly increased, which showed that some brood-rearing began in January, and, throughout that month and the months of February and March, the average consumption per colony was about four or five pounds per month. The winter of 1918-19 in Kansas was known as an open winter, and in January, 1919, the packed hives consumed five pounds more honey than they did in December, 1918. In February the consumption remained about the same, but during March and April the amount of honey consumed was greatly increased, so that in one of the packed hives there was a loss in weight of $11\frac{5}{8}$ pounds. As will be seen later, this honey was consumed in brood-rearing, as the colony which consumed the $11\frac{5}{8}$ pounds was the strongest colony of the six. During the open winter, the packed hives consumed considerable more honey than did the unpacked hives. The average daily consumption of the 1-story unpacked hive, protected by a windbreak, was 1 6-10 unc. In 1-story hive, not protected by a windbreak, the average daily consumption was 2 ounces. In the packed hives, the protected and unprotected, the average daily consumption was 2 6-18 and 2 9-10 ounces, respectively. The result was what would be expected, because when the bees are rearing brood they have to consume honey. The total consumption of honey in the packed hives for 151 days was $37\frac{3}{4}$ pounds, which in-



Honey house built in eight-foot sections to facilitate moving when necessary.

dicates how much must be left in the hives for storage, in order to winter successfully strong colonies. On May 4th, 1919, it was considered that the honey-flow had started and the spring weighing was taken, with the following results:

Unsheltered—No Windbreak

One-story hive, 11718 bees, 3 2-3 frames of brood.

Two-story hive, 16406 bees, 3½ frames of brood.

Packed hive, 36718 bees, 4½ frames of brood.

Sheltered—Windbreak

One-story hive, 14063 bees, 4½ frames of brood.

Two-story hive, 20936 bees, 3¾ frames of brood.

Packed hive, 38594 bees, 5¾ frames of brood.

Upon examining the above figures the value of the different forms of wintering is apparent. Whether protected by windbreak or not, the 2-story hives have about 5,000 more bees in the spring than the 1-story hives, and the packed hives have about 25,000 more bees. Figuring 5,000 bees to the pound, valued at \$2.50 a pound, the packed hives would have \$12.50 worth of bees more than the unpacked hives. The difference in the value of a windbreak is more apparent, as would be expected with the hives which were not packed, although there is about 2,000 bees difference in the packed hives in favor of the windbreak.

The comparison between number of bees in fall and in spring weighing is as follows:

No Windbreak			
	1917-18		1918-19
	Gain or Loss		Gain or Loss
1-story hive	332		3282
2-story hive	2808		-469
Packed	4578		22968
Windbreak			
1-story hive	4538		313
2-story hive	13346		5936
Packed hive	15132		24844

The above figures show several things. The winter of 1917-18, in Kansas, was a very severe winter, in which the bees were confined to the hives for a long time without a flight. The winter of 1918-19 was one of those open winters when, according to popular opinion, there is no need of packing bees. An examination of the facts stated above will, however, dispel this illusion. For instance in the 1-story hive, during the severe winter, there were 332 bees less at the spring weighing than in the fall. After the open winter in the same colony there were 3282 less bees. In comparing the figures of all the other hives during the severe winter, with those during the mild winter, the fact is brought out that, in a mild winter the bees need to be packed even more than during a severe winter. Another fact which is distinctly shown in the figures is the importance of the windbreak, the 1-story hive in the open had 132 bees less in the spring than the fall, while the 1-story hive in the windbreak had 4538 more bees. In 1918-19 the 1-story hive in the open had 3282 bees less in the spring than in the fall, while the

1-story hive, in the windbreak, gained 313. However, the most marked result which these figures show is the value of the packed hive.

During 1918-19, while one colony of bees was decreasing 3282, the packed hive gained 22,968. While the other 1-story hive was gaining 313, the packed hive gained 24,844. The difference between the packed hive and the unpacked hive during 1917-18 was not as great as 1918-19, because packing material used in 1917-18 was excellent and shavings, while during 1918-19 it was forest leaves firmly packed.

As stated above, more hives would be desirable in carrying on this work, but it seems to be very clearly proved that the windbreak is very valuable in winter protection, that 2-story hives are preferable to 1-story hives for the bees that remain unpacked throughout the winter, and that the difference in the number of bees, between packed hives and unpacked hives, in the spring, is so large that it has justified the extra expense incurred in packing. The fact has been brought out already that no locality may claim immunity on account of the fact that it has open winters, as these open winters are harder on the bees than a severe winter, where brood-rearing is postponed until warm weather has set in.

Manhattan, Kans.

The Queen Condition of Parent Hives After Natural Swarming

By Morley Pettit

A CORRESPONDENT has raised a question which is very important in connection with natural swarming. She has found that three of her "old swarms" have no queens, and wishes to know how to proceed.

It is a common experience where natural swarming is allowed, to find that some of the parent hives fail to get laying queens afterwards. By the time their condition is discovered

they have usually become just a bunch of "buzzy bees," which are practically worthless because of their age and the difficulty of requeening them, and what is almost worse yet, they have filled their combs so full of pollen that about the only cure is to melt them down.

It is best to examine all parent colonies in three weeks after swarming and, if eggs are not found, give a comb containing eggs and very young larvae. A week later an examination may reveal a fresh batch of eggs indicating that the young queen has got down to business. This may not prove that she was not laying before, however, for I have found **eggs only** one day, then a few days later **no eggs** in the same place. I think the workers being elderly and not used to babies, ate them.

When a young queen finally gets going well we are still not satisfied till she has enough brood capped to indicate that she is "off to a good start" and is not likely to develop drone-laying propensities early in her career.

To requeen a colony which fails to prove a queenright condition, we first make sure it has no queen of any kind, then place on it, over an excluder, a nucleus having a full brood-chamber of combs and a good queen. One week later the order of bodies is reversed so that the nucleus on top becomes the brood-chamber of the colony.

Georgetown, Ont., Aug. 30, 1919.

Another Short Course Announced

We have been advised that a short course for commercial beekeepers will be held at Yakima, Wash., beginning November 10 and continuing for five days.

Dr. E. F. Phillips, George S. Demuth, A. P. Sturdevant and H. A. Scullen of the U. S. Department of Agriculture, together with western men, will appear on the program. This is the first of these short courses to be held in the northwest, and it is hoped it will be largely attended.



Colonies used in Merrill's experiments.

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MAURICE G. DADANT Business Manager

THE EDITOR'S VIEWPOINT

Let's Play Fair

The publishers of the American Bee Journal try to use great care to make sure that no dishonest advertiser makes use of its columns. However, there is an unusual opportunity for dissatisfaction in the purchase of bees and queens from strangers. If a man sends us an advertisement to the effect that he wishes to dispose of his bees we can hardly refuse him space. The buyer should use some care to make sure that he is getting what he expects before he parts with his money.

We have a letter from a beekeeper who sent money to a well-known New Yorker for a colony of bees, in response to an advertisement of this kind. The seller made a mistake and sent the bees to a wrong address. As a result, the bees were not delivered for ten days. Most of the bees were dead and of course the colony was queenless. An order was then sent to a well-known queen breeder for a queen, and two weeks elapsed before the order was acknowledged. As a result the colony is bound to be practically worthless.

It is high time that steps were taken to place the handling of bees and queens on a business basis. Those who deal in queens or package bees should be prepared to acknowledge receipt of an order by the next mail and tell the purchaser approximately when delivery can be made. If immediate service is asked for, the money should go back promptly if the dealer is unprepared to fill the order. There have been too many disappointments of this kind the past season. It is true that the queen breeders have had, in many cases, to contend with unfavorable conditions. This does not excuse the unbusiness-

like methods of some of them. The seller should remember that many customers are inexperienced and do not realize fully the difficulties of the breeders.

Several of our most extensive breeders have handled their business in a way to merit the continued confidence of their customers. These men have returned many unfilled orders, yet disappointed customers have written us to pay them compliments because they were prompt and fair in their dealings. In contrast to these, several have caused complaints of short weights in package bees, slow delivery, poor packing and generally unsatisfactory service. A few have fallen down altogether, and up to the present have neither returned the money nor filled the orders.

The great expansion of our industry has been somewhat responsible for these conditions. The unusual demand for bees and queens has attracted men without sufficient experience or capital, and in such cases disappointment is to be expected.

Bees in the Bush and Trout in the Brook

Wife and I took a trip to northern Michigan, in August, and stayed at Bay View, for 3 weeks. While there we called on several apiarists of the vicinity, 20 to 40 miles away. It is enjoyable, after visiting beekeepers all through Europe, to loiter in the different parts of our own country and see the methods followed. There is always something to learn.

On August 20, we went to East Jordan, via Boyne Falls, where Mr. Ira D. Bartlett and his pleasant and pretty wife came for us at the train. In the afternoon, we left the wives at home and went to his apiaries, sev-

eral miles in the country, over hills and through valleys, and by such roads as the beekeeper in the brush usually travels.

Mr. Bartlett has a way of making an artificial flow which induces the bees to breed without actually supplying them with stores. He mixes sugar with water in the proportion of one to seven, or almost a gallon of water to a pound of sugar. This makes a very thin compound, which might be compared to nectar containing 86 per cent of water. It is so thin that the bees have to be attracted to it artificially; otherwise they would not notice it. Some old combs placed on the water or the use of a little richer feed at first will bait them. After they get accustomed to the supply, they come and take it readily.

This has the same effect upon them as a light flow of nectar. It renders them peaceable and causes them to breed. It helps in the introduction of queens, as the bees are less apt to be ill-natured during this light artificial flow. I can readily see the advantage of such feed in times of scarcity.

On the way to and from the apiaries, we passed several brooks of clear, cool water, running among the pines towards the lakes, with the same hurry and lively glitter as the little streams we saw in Switzerland, which all seemed to hasten, in their course to the goal, as if they were running a race. This activity of the cool water, combined with the crystal clearness of the streams, which all come from springs running out of the shady hills, is in such contrast with the murky and quiet flow of the majestic Mississippi to which we are accustomed, that I was very much charmed, especially as I was told that the brook trout is plentiful in these little streams and may be readily seen.

As we crossed a culvert over one of these little brooks, Mr. Bartlett stopped the auto and said to me: "Step down, I'm going to show you a trout." We got down, but I vainly looked, in a brooklet about 4 feet wide and perhaps 2 feet deep, for a sign of fish, large or small. There was nothing in sight.

Meanwhile Bartlett had gone a few steps away and was kneeling in the grass, apparently looking for a lost pin or a dropped penny. I wondered at his action. But he quickly returned, with a grasshopper in each hand. He at once threw one of the

insects in the water, with enough force to make a slight splash.

With a swish and a swirl, a black streak, quick as greased lightning, appeared from under the culvert, and with a snake-like motion, splashed about the grasshopper, which disappeared and the water again became still, before I had time to notice whether the trout measured 6 inches or 2 feet in length. The second grasshopper had the same fate, though it took a second or two longer to secure the same black lightning effect.

I suspected that there might be some collusion and that Mr. Bartlett and that trout had an understanding, to astonish and deceive the tenderfoot, that I was, into believing that trouts are everywhere in those brooks constantly watching for their opportunity to grab the poor grasshopper. But Mr. Bartlett denied any connivance with that particular fish.

Well! the trouts of North Michigan must be plentiful and easy to catch, if they bite so readily? Oh, don't ask me, go and try it for yourself. I did not catch any.

Are We Good Samaritans?

The following letter is selected by us from among a number of similar requests:

"Nancy, France, Sept. 1919.

"Editor American Bee Journal:

"What help could we secure from the beekeepers of generous America, in the way of beekeeping material (excluding beehives), during the coming season?

"Nine thousand hives of bees have been either stolen or destroyed in the Department of Meurthe & Moselle. It is unnecessary to say to you that the disaster sufferers have lost also their homes, their live stock, their household goods, their orchards and that even their fields are dug up with shell holes, trenches, etc., and covered over with barbed wire entanglements.

"I am respectfully yours,

"RENAULD,

"Treasurer of the Eastern Association of French Beekeepers...

"Address, Francois Renauld, Banker, 58 Rue St. Jean, Nancy."

We doubt whether any but those of our boys who have been actually in the trenches can appreciate the present conditions in devastated France and Belgium. Distant relatives of ours who lived at Grand Pre and whom we had opportunity to help during the war, as they had been

forced to run away from their village and establish themselves temporarily in the undamaged districts, kept up a regular correspondence with us during the war. At the signing of the armistice, they were overjoyed and wrote us that they were going back home to rebuild whatever was destroyed, and invited us to come back and visit them. But very discouraged letters from them followed the joyful one. They had gone back, had found the entire village in ruins, so that they could hardly tell where their home stood. There was nothing there to do anything with, no valid workers, no lumber to be had nor supplies of any kind. Yes, they were to receive pay secured from Germany, by and by, but even that money will buy but little, as all European values are depreciated. The German mark is worth 18 per cent of its normal value, the French franc is worth 60 per cent of what it used to be. That is to say, a franc, instead of bringing nearly 20 cents in American money, now brings only 12.

If our produce is high in price, if our honey sells at 20 to 40 cents per pound instead of 8 to 15, as formerly, we owe it to the suffering abroad. America has done quite a great deal for Europe, but we must do still more.

The American Bee Journal now opens a subscription to help these French and Belgian beekeepers whose entire resources have been destroyed and who even with the German indemnities (when these are paid) will still be suffering. Let the friends give what they can, queens, supplies or money. An arrangement will be made to have these supplies sent by the most economic and direct way. Let us know what you are willing to do and we will publish the list in the Journal. We will head the list as follows:

Dadant & Sons, 200 pounds of foundation.

American Bee Journal, 10 Italian queens.

C. P. Dadant, 500 francs.

Supplies of different kinds may be forwarded during the winter. The bees must go when the weather is sufficiently warm, in April-May. We understand that bees are being bought in those parts of Europe not damaged, to give a small start to the former owners of colonies in the damaged regions.

Instructions will be given to the

subscribers to this fund, in time for action.

Endurance of Bees in Transit

In the December, 1918, number of this magazine, page 416, the editor gave his past experience in importing bees and wrote: "Very young bees did not prove as hardy as the active field bees, though the younger bees among the latter are best."

Concerning this statement, the present editor of *L'Apicoltore*, of Milan, Italy, writes, in the June number:

"How is it that on this same matter we have diametrically contrary experience? When we sent queens to foreign countries, America included, it was precisely the workers that had never had a flight, that resisted the best during the trip, especially in the long trips, such as to Texas, to Jamaica, and even to Signor Dadant, Root etc. Other causes, we believe, must have entered in the cases of which Dadant writes, but we persist in believing that the youngest bees, not yet accustomed to outside flights, stand best the prolonged reclusion."

This matter is worthy of further investigation. What do the importers and exporters have to say?

Large Hives Vs. Swarming

E. R. Root, in *Gleanings*, September, page 577.

"After interviewing Miss Crowder, we hunted up her father, J. F. Crowder, of Zimmerman & Crowder, of Pasadena, and the apiary in the background where this honey was produced. Yes, indeed, there was a very pretty apiary made of three and four-story colonies, about evenly divided between ten-frame and twelve-frame colonies. Dare I tell it? And would you believe it? The twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard, with the same honey-flow and the same management. Both Zimmerman and Crowder testified to the comparative freedom of the big hives from swarming. It is the same old, old story that the Dadants, Holtermann and others have told us for years."

(Yes, and we would wager that the wider hives yield just as many supers full, though 20 per cent wider than the others, even if the others did not swarm. That is the old story, too, with us.—Editor.)

SHIPPING EXTRACTED HONEY

BY M. G. DADANT

RECENT decisions by the Rate Committee of the Western Classification have resulted in slight advances in rate on extracted honey in different styles of containers. Beekeepers are apt to be surprised at this and wonder why the rates should be advanced when the rate on other liquid sweets is not advanced in proportion.

The fault, of course, lies with those beekeepers who are not careful in putting up and packing their product in proper manner for shipment.

A rate committee does not raise the rate on one article without reason. They take the list of claims which have been paid by the different railroad companies as a basis for formulating such increase. If there have been many claims presented for shipments of honey, the railroad company must defend itself by raising the rate sufficiently to cover the damage.

In the case of other liquid sweets, such as corn syrup, etc., these are practically all put up by large and reliable firms, that are well acquainted with the requirements necessary for getting their product through in good shape. They pack such products so as to reach the customer safely, not only to save claims and additional freight charges, but also that the product may give satisfaction.

Another thing is that these liquid sweets are usually shipped in carloads to distributors, and from these distributing houses shipped out to the retail grocers. The amount of local freight business is, therefore, very small, and the distance such freights go is usually short. The amount of

damage should be proportionately small.

Of course, not all beekeepers pack their honey poorly. But the careful, thrifty beekeepers who pack their honey securely must help pay the damages claimed through shiftless packing and leakage. It behooves every beekeeper, therefore, to pack his own honey securely and urge in every instance that his neighbor do the same.

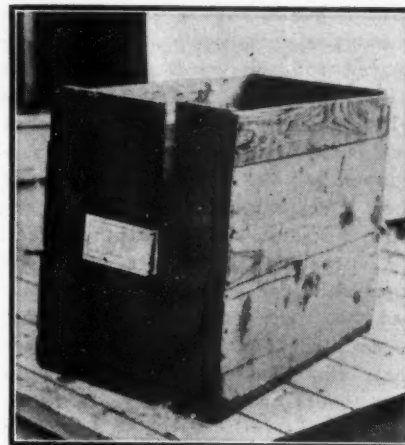
In considering shipments of honey, there are three factors which enter into consideration, in determining finally the proper freight rate. The first of these is the quality of the product, the second is the containers, and the third is the packing case in which the container is shipped.

Quality of Product

In spite of continued urging on the part of all educators and bee papers, there are still large numbers who keep bees and do not know what ripe honey is. So a great deal of honey is extracted when it is yet unripe, and it ferments after being placed in the packages.

We believe that the reader would be surprised if he were to visit any of the large distributing centers where honey is received in all styles of packages and from all directions. Many such shipments come in leaky, the cans bulged, barrels with staves broken in and in some instances contents completely gone from bursting of containers, owing to the fact that this honey was shipped when unripe, and had fermented enroute.

The honey commission merchant and the large dealer must guard him-



Ends without cleats are in danger of splitting.

self against such shipments and the result is that the loss is prorated in many instances against the good shipper as well as the poor one. This also accounts for the fact that in many instances beekeepers are dissatisfied with returns on their honey when it left their hands in apparently good order. We recall one shipment of three or four barrels from the South which had been put up unripe. One barrel came, or at least one or two staves of the barrel came, most of it being left on the car floor. Another barrel was about half full, the other two were badly leaking.

Another item, entering into this, is whether the honey is to be shipped in liquid or granulated form. Of course, if the beekeeper intends to hold his honey until granulated and then ship, there will be considerably less danger from loss on the road, and he could afford to use a little less strong package, although it is not desirable.

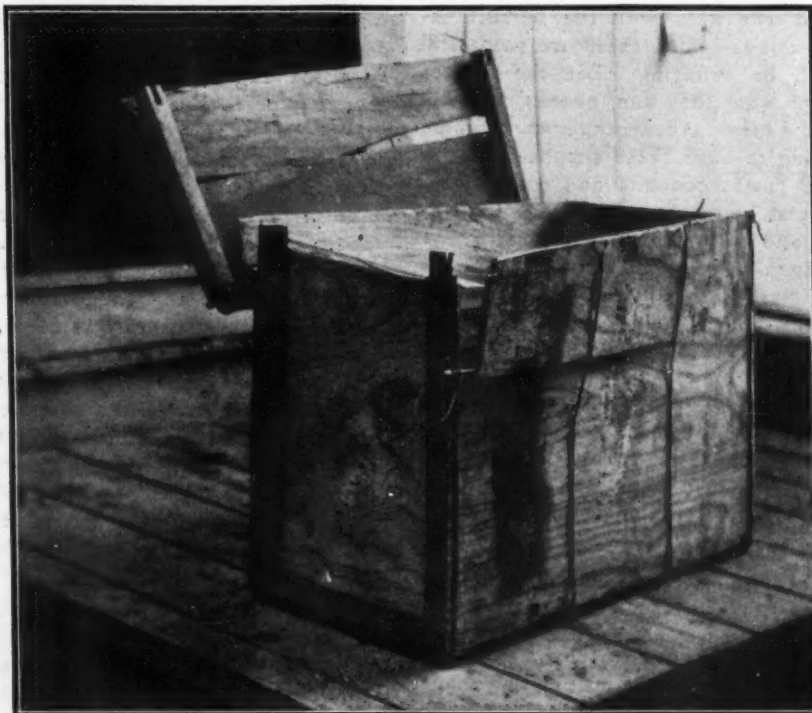
In any instance, honey that is to be shipped should be of high grade, not only to guarantee its safe transport, but that it may give satisfaction at the other end.

The Honey Container

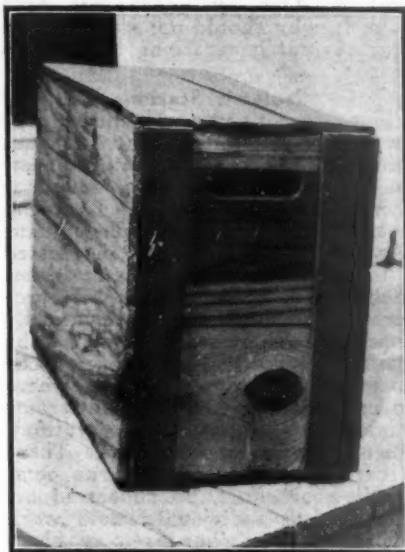
It would hardly be advisable for the beekeeper to insist upon a heavier grade of glass in choosing his glass packages. Glass containers, as made by the large factories, conform to certain standards and are sufficiently strong to stand freight shipments if properly packed. Of course, there will be the usual breakage, as with all shipments of glass.

In tin honey containers, the beekeeper has a little more choice. The ordinary friction-top pail, in the small-size pails is, of course, the best package. The other style of tops, loose fitting, should not be used in making shipment. All friction-top pails are usually made of the same standard of tin, so that the beekeeper cannot go far wrong if he orders any of the standard friction-top packages.

It is in the 5-gallon or 60-pound con-



The veneer case is too light to carry two cans of honey safely by freight, and should never be used.



A good case costs a little more, but carries its contents safely to destination and its general use would bring a lower freight rate.

tainer that the weight of the tin varies more. The beekeeper should insist that his 60-pound cans be sufficiently heavy to carry the honey he is to put in them. A tin of the basis of at least 107 pounds should be used.

Barrels, if properly made and properly packed, would make the very best containers for honey. It is probably, however, in barrels that the greatest loss occurs. This arises from the fact that the beekeeper does not buy the right quality of barrel. It must be remembered that honey, instead of soaking up the staves by giving out moisture, rather absorbs it. The utmost care, therefore, must be used in selecting a barrel which will not dry out after it is filled with honey and thus cause leakage.

It may not be amiss to mention here that it is a great mistake for any beekeeper to soak his barrels so they will be tight and hold honey. The unavoidable result of this is that honey in time absorbs the moisture from the barrel and the leakage is worse than ever. Staves should be tightened thoroughly by driving down the hoops and making the barrel absolutely honey-tight when dry.

Barrels made of soft wood and with six hoops or less are very much inclined to show leakage when honey is placed in them. In fact, we would recommend only a hard-wood barrel with at least eight hoops. The ordinary commercial alcohol barrel is the best package for honey. It is well made and will carry its load with very little loss.

In fact, in our many years of using such barrels, we do not remember of having a single loss.

Shipping Packages

The barrel requires no further packing for shipment if it is well selected and carefully tightened.

With glass packages, the container is usually furnished by the glass manufacturer and conforms to the standard set by the railroad. There is bound to be a great deal of loss in shipments in glass containers, and

the freight rate must necessarily be high to offset this.

Glass packages are not usually shipped very long distances by local freight. The small producer buys glass packages and sells his honey in this shape to the local stores and the nearby towns. The large producer guards against losses by either shipping in carlots to distributing points or by carefully packing before sending out.

It is in tin packages, probably, that there is the greatest amount of variation in the style of box used. Some of the boxes are so flimsy they will hardly stand hauling to the depot, but the shippers expect them to be carried safely by the railroad company the length of several States to destination. The friction-top packages should be in boxes with seven-eighths heads and three-eighths lumber for sides, top and bottom. The heads should have hand-holds so they can be easily transported. Besides this, such boxes should be made of good, strong lumber which is not apt to split and thus damage the box through rough handling. Then, too, the amount of honey should not be so great in each box that the weight of the contents will render the box inefficient. Not more than six 10-pound cans, twelve 5-pound or twenty-four 2½-pound should be placed in one package. The lids of the buckets should be driven down tight and the lid of the box should fit against the lids of the buckets so as to prevent them from working loose. Another thing which is very often neglected is care in nailing the boxes together. Very often nails are driven inside and pierce the cans, so leakage occurs from the start. If coated nails are used there will be less danger of their pulling out and accidentally being again driven so as to pierce the tin instead of the lumber.

If small shipments are to be made by express, of two or three cans, it is usually best, besides other safeguards,

to have a handle to the box, to secure safe arrival.

The two-sixty-pound case has the greatest strain upon it, since it contains 120 pounds of honey. It would be well to have these cases made with one-inch heads and one-half-inch sides, bottom and top, with a wood partition in the center of at least half-inch lumber. This makes a very heavy case, but more expensive than the beekeeper desires. It is, however, imperative, if shipment is to reach destination in good shape, to have the heads made of seven-eighths lumber and the sides, bottom and top of at least three-eighths. This lumber should be straight grain and not shaky, and nailed with cement-coated nails, so that it will not pull apart in transit. A small additional expense on the part of the beekeeper in selecting his packages would go a long way towards securing safe delivery. It is negligence in the choice of the packages which has caused the freight advance. As stated previously, the companies have to figure upon losses paid and must necessarily raise the rate so that there be some remuneration in handling this class of freight, or else refuse the business entirely.

We would like to see a definite standard set for all styles of packages and containers. With this, we believe that the losses could be minimized and freight rates reduced. These Classification and Rate Committees are, of course, working for the best interest of the railroads, but are willing to listen to the arguments of the shippers.

Then, too, there is no distinction made between the ordinary domestic case and the export case. The export case has twice the handling at least, since it must reach the seaport, be transported on board ship, unloaded on the other side, and again hauled by railroad to destination. Export cases should be made considerably heavier than domestic cases, and this



The soft wood barrel with six hoops at left is unsafe for shipping honey. The hard wood barrel with eight hoops at right will carry safely.

is of even more importance than carefully packing the honey for home shipment. Our export market can easily be diverted to some other source if we are not careful in furnishing the best grade of honey put up in proper packages so it will reach them in good shape. There is bound to be competition on the part of other large markets, and should they furnish a better case, a better packed article, they will get the business and in time we will lose out.

The National

To the Beekeepers of America:

At the annual meeting of the National Beekeepers' Association at Chicago last February, there was evidence of dissatisfaction with the existing National organization. Provision was made for a convention of delegates from the various State associations to meet in Kansas City on January next. These delegates will come together to put into concrete form your views of what a National Beekeepers' Association should be. Your delegates must answer the following questions and many others:

Shall the National be exclusively a social and educational organization?

Would such an organization satisfy the needs of 800,000 beekeepers?

Has the National kept pace with the development of American beekeeping?

Should the National foster the organization of co-operative exchanges in the various States and take an active part in the business life of American beekeepers?

Shall the annual meeting of the National be a social meeting with an educational program, or shall it be a business meeting of delegates from State organizations?

What shall be the future relation between the National, State and County organizations?

Shall the National undertake a nation-wide advertising campaign?

Shall membership be open to anyone, or shall it be confined to bona fide honey producers?

Shall the National maintain a paid Secretary and an office which is open for business the year around?

These are some of the questions which will come before the meeting of delegates at Kansas City. Your delegates must be present or the opinions of the beekeepers of your State will not be represented.

The well-organized States of the great West will be there. The delegates from the central and eastern States should be there to present their opinions. Nearly all organizations in the central and eastern States will hold annual meetings within the next three months. This matter should be taken up at each of these meetings. By all means send a delegate to voice your sentiments.

It is not a question of whether the National shall live or die. The National will live, but its future activities will be modified to suit the needs of the beekeepers it represents. Whether it shall represent a section

of the country or all of the nation, may depend upon whether or not beekeepers from all sections participate in its reorganization. It is incumbent upon every organization to take some action on this matter.

B. F. KINDIG,

President National Beekeepers' Association, East Lansing, Mich.

Pedigreed Mating

By D. M. Macdonald

THE scheme of improved breeding dealt with in my last article (August Journal) involves the pedigree of both sire and dam for several generations. We thus secure at the start that "blue blood" on which to erect our superstructure. Building on this credit balance we can concentrate on improvement all along the line.

We have some queen-breeders in this country who work by pedigree. Year by year advance has been secured by patient and diligent work. All medium, as well as poor mothers have been discarded. Only the best of the best have been retained. Even of these the various degrees of comparison have been sifted, and the lower grade eliminated. A very high ideal has been striven for from the start and year by year the tendency has been to raise the standard nearer and nearer towards perfection. The climb up the many rungs of the ladder may be slow, but it has been steady. Healthier bees have been the result. Longer lives are claimed. Prolificness has undoubtedly been secured. Gentleness when manipulating is more marked. Faults, such as over-propolizing, have been considerably eliminated. The pedigree of each queen is noted, and a reliable record kept for many generations. All this, if carried on long enough, and if the advance is along proper lines, must tend towards the betterment of each succeeding generation.

Our cattle breeders have done it, why should not we, who can rear several generations in a single season?

Isolated Stations

Some years ago a scheme was formulated in our island to improve our bees by breeding better queens on the basis of pure (and comparatively controlled) mating. Working from several mating stations in centers where the mating of tested queens and specially bred drones could be controlled, all the best procurable were to be systematically improved. These stations were to be planted down in isolated districts, or in islands off our shores, where no contamination by inferior strains was to be feared. Isolated stations, however, mean isolated work. There is here no systematic plan, no combination of effort, no concerted action. Every individual would work at least mainly for his own hand. That has been our weakness hitherto. One worked for color alone, of all aims and objects one of the most fallacious. Another worked for outward beauty, forgetful that beauty is only skin deep, and that softness and delicacy might more likely result. A third strove for gentleness, in itself a virtue, oblivious of the fact that anemic tendencies and low vitality might come up top in securing mildness of temper and disposition. Longevity was the professed aim of yet another set of experimenters. Lazy bees live long, inactive bees take long to wear out, but neither are desirables when breeding for improvement. Apart from all this there was a want of combination or preconcerted effort in all this design of isolated work without control from some central authority.

Messrs. Root, in volume XIV of *Gleanings*, put forward a scheme which was formulated to mate queens by drones liberated in one of the largest glass houses in the world. In spite of its size, the



New apiary started at the White Sulphur Springs resort in West Virginia. The owners expect to increase to 300 colonies in order to be able to supply their patrons with honey from their own yards, the year around. The crop in West Virginia is good this year, according to State Apiarist, Charles A. Reece.

chosen sire, I fear, would find himself "cabin'd, cribb'd, confin'd," and it is questionable if he could put out his best effort in the race, and it is perhaps more questionable if the best of three would be chosen to act as Prince Consort. This system has long been the design of many minds and has been tested again and again only to be dropped. Artificial copulation has been only a dream, although assertions have been made that success had followed a trial. No, only in the distant depths of the pure ether can queens be mated. Man can say that only pure drones shall be reared, therefore only such can fly—thus far he has controlled true mating. Any scheme for advancing further must be the work of no single individual. I would prefer to think not even of any single State, but of your united Republic. It should be a national affair, financed by a government subsidy, and the very best beekeepers should be chosen to formulate a scheme, to lay down rules of breeding, to guide and direct the procedure. Yearly, half-yearly, or, better, quarterly conferences should be held. Data should be digested, the chaff winnowed out, the questionable grain should be rejected and only the best of the very best retained.

Nearest to my ideal of a scheme for securing controlled, pure pedigree mating, however, comes the Swiss Beekeepers' Association, with its rearing of special mothers (the dams), select purely nurtured drones (the sires), and their isolated centers up amid the Alps, where queens can be mated with an accuracy and guarantee of purity obtained nowhere else so certainly. Their procedure is no haphazard one. They act in combination on the same principle which guides them as a Republic. Every association, as in the case of each Canton, takes part in the management of the confederated effort, every beekeeper, indeed, and more especially every queen-breeder, is a member of the league, which settles every fundamental of the scheme under which they all work individually and collectively. Well-devised rules are followed implicitly, results are tabulated, tested and reconfirmed or rejected.

Yearly, or half yearly, there is held a conference of the different breeders, where results are discussed, new plans are formed, old ideas modified, or shred as a result of acquired data, the fruits of observation and experience. After discussion further unified effort agreed on. One isolated member has an experience which he estimates is of high value. Others may have quite the contrary experience, tending to disprove its value further than a mere result of chance. The result may be a mere "sport." One man, one mind, one experience, does not count for a final decision, although it may mean further testing. When, however, ten, twenty or more chronicle the same result, working under diverse circumstances, surroundings and climates month after month, year after year,

there is a weight of testimony which cannot be ignored. This even does not pass muster until it is tested, sifted, analyzed, put through the crucible. All the good is retained, all the questionable further tested and only the good put into circulation for dissemination and use.

Here is where the weakness of queen-breeding in this country and America comes in. Every breeder is a law unto himself. Each one runs his wagon on his own little line of tiny rails. What I desire is a universal railway with one gauge, under the authority of a central controlling power.

Dufftown, Scotland.

Large Vs. Small Hives

ON page 229, first column, you say, "And we, old heads in the commercial line are apt to overestimate our knowledge and make light of the theories brought forward, backed by experiments, which sometimes contradict our preconceived ideas. Much that we think we know we have to 'unlearn' or correct."

I think you are as much prejudiced in favor of large hives as I am in favor of small ones. There are several great advantages in the modern systems of beekeeping. First of all, I will name the movable frame. We will call it a handle to a comb of honey or brood, so we can take hold of the handle and remove the comb of honey or brood and put it back where it was before or put it in another part of the hive or in another hive.

If we have two different-sized frames in the same yard we are restricted and we lose one of the greatest benefits of modern equipment.

Second, I will name the divisible hive. All modern beekeepers divide their hive into brood-chamber and super, and I might say that all of them divide their super into parts, the advantages of which are too evident for me to mention.

Now tell me why some of these progressive beekeepers stick to a great big undivided immovable brood-chamber that they have to always leave in one place or have a man to help move it?

I know just what you will say. To prevent swarming; but I think we might better say, to suppress or prohibit swarming; but the bees often build little speak-easies that we call queen-cells, that they hide in the middle of their brood-nest and we have to send detectives to hunt them up.

The detective takes out each large frame, smokes or shakes the bees off and then hunts for speak-easies. Sometimes he finds them all, and sometimes he doesn't; but you all know how it is, I don't need to tell you.

When the brood-nest gets full they put most of it up stairs and then next week do it over again and hunt every week, top and bottom, for speak-easies, and so on 57 different ways, to try to prevent swarming;

but the bees have 57 other ways to get ahead of you.

One big brood-chamber with two or more different-sized supers for comb and extracted honey is a very good way, and I would not say a word if I did not know a better way.

All single brood-chambers, whether large or small, are sometimes too small and sometimes too large, and with large hives and deep frames the top-bar must be heavy, the standard is seven-eighths by seven-sixteenths, leaving only five-sixteenths between, and if the frame above has no comb at the bottom the queen is simply prohibited from going above.

Then if the second brood-chamber has shrunk three-sixteenths and the bottom-bar covers five-sixteenths space, the queen is excluded from going above.

By using shallow brood-chambers (5 11-16) and following Fowler's new system everything is changed and 56 out of the 57 varieties of preventing swarming are eliminated and the poor beekeeper's nerves have a rest. No swarming, and the maximum yield of honey with much less work, and no worry.

The notion that the queen either likes to lay, or that she does lay in a circle is most all imagination.

In the cool spring and a cluster of bees to keep the brood warm, the brood is in a circle, simply because there is no other warm place to lay.

People on a cold day form a circle around a hot stove, but it is a love for the stove, not the circle. On the last of May I hived a new swarm of bees (11 pounds of bees) and in four weeks they occupied 8 chambers and the queen laid in every one. The next day, after putting on the eighth super, there were eggs in it. There was brood in 28 frames at one time.

She commenced at the bottom super on the sunny side, and after laying in 5 frames she commenced in the second super on the sunny side, and kept on the sunny side until she was in the 5th super, then she laid in 8 frames, but kept away from the north side of the hive.

This is an experiment that contradicts our preconceived ideas.

I have 20 swarms of bees that are giving me more honey than ever before, without a single swarm, in fact, without a single queen-cell. This, also, contradicts our preconceived ideas in regard to swarming. Other bees near by were swarming more than usual. I bought two 3-pound swarms from a lady with bees in the top of the house, no other bees near.

Of course, I would have to try my system for years and years to prove that it is an absolute prevention, and even if I know how to prevent swarming, I am like many others that do not always do what they know how to do. C. E. FOWLER.

New Jersey.

The above letter evidences exactly what we hold, that in large hives the queen usually confines herself to one story, while with shallow hives, she roams all over a num-

ber of stories. The writer of the article seems to think that that is what he wants her to do; we don't. We want our queen below, in a story that is sufficient for her. As for hunting queen-cells, we never do it, as it is unnecessary with our management.

It may be that we are prejudiced upon this matter, but if we are, it is after constant trials of both styles, large and small brood-chambers, in large numbers, and we doubt that our correspondent and critic has had a similar experience on as large a scale.

As to an **absolute** swarm prevention, we do not believe there is any such thing, or ever will be. C. P. D.

What the Newspapers Are Saying

Serious, Ridiculous and Frivolous Extracts From News Dis- patches About Bees

Bees Re-Steal Honey

Lawrenceburg, Ind.—When Robert E. Terrill went to his storehouse to get a quantity of honey he had taken from his swarm of bees, the honey was gone. He supposed thieves had taken it, but later noticed bees about the storehouse, and made the discovery that they had carried the honey back to the hives, gaining access to the storehouse through a keyhole.—Greensburg (Ind.) News.

Bees on a Missouri Farm Follow Plane Loaded With Flowers

Patterson, Mo.—The latest thing in air plane stories comes from the bee farm of Madden Polk, near here. It tells how a colony of the honey-makers were stampeded by an aeroplane passing over the farm carrying a cargo of flowers. After the bees had made their hurried exit it was learned that the flying machine was carrying a cargo of magnolia blossoms which filled the air with fragrance. When the bees on the Polk preserve got a whiff of the unusual aroma, they left in swarms, it being estimated that a half million in the 50 colonies on the Polk place forsook their hives and flew after the plane. There were enough young bees left to protect the hives, but Polk had dismal visions of the luscious honey somebody else would gather from the runaways.—Poplar Bluff (Mo.) Citizen.

Unique Use of Plane

If Nelson W. Peck had gone up in an air plane a year ago instead of waiting till this morning, he figures that he would have saved \$10,000, though it cost him a dollar a minute to stay up for an hour and a quarter this morning.

Peck is one of the leading beemen of the valley, and, instead of the 1,000 stands he had a year ago, he has now only 250. Bees in the others were killed by absorbing dissolved spray. "From the air plane I could pick the proper places in which to put my stands," he says. "I located some such places by automobile, but

did not notice, from ground level, that there were orchards to which the bees will have easy access. From the plane I could see which stands should be moved and which can be left. I expect to make three more trips before I have finally placed all my bees."—Yakima (Wash.) Republic.

Migratory Beekeeping

Paulding, O.—Dr. Kohn & Son, who operate an apiary at Grover Hill, this county, recently received a car load of bees from Apalachicola River, Fla., to aid an experiment by S. W. Summerfield, Toledo, owner of the bees, and Dr. Kohn on migratory beekeeping.

The bees have already produced 50 barrels of honey. After "work" this summer they will be shipped back to Florida. The freight on the car of bees amounted to \$455.64—Toledo (O.) Blade.

Bees' Stingers Make Profitable Crop

Raising bees for the stings pays an eastern woman better than keeping them for the honey which they would produce. From these stings is secured the purest formic acid obtainable, and the customers are the manufacturing druggists of the country. During the past 24 years this woman has supplied one firm with 25,000 annually, other concerns take from 500 to 5,000 each year, making a yearly trade of 50,000 stings. To produce this number but two colonies of bees are necessary, while it would require 50 colonies to make an amount of honey equal in value to the stings.

The manner of taking the sting from a bee is simple. The bees are first gathered in a specially arranged box, by shaking a comb on which they are working, over the mouth of the box. Next, in a room

with all the shades but one drawn, the box is opened. As the bees come out of the box they are attracted to the lighted window, and cluster there on the glass or screen. Mrs. Beekeeper picks up the insects by their heads and, holding them under a magnifying glass, draws the stings. For this purpose a small pair of tweezers is used. The stings are placed in a dish filled with milk sugar, which covers them with a coat that prevents decay.

Each sting contains a small amount of formic acid, which is removed by distillation. This acid is used in the treatment of rheumatism by homeopathic physicians, being administered in much reduced strength, while doctors of the regular school use it, reduced one-half, for restoring circulation in cases of paralysis. Formic acid was one of the first of the solid-fat acids discovered. It was originally obtained by distilling common red ants (*Formica rufa*) from which the name is derived.—Popular Mechanics Magazine.

More About Santo Domingo

By H. Brenner

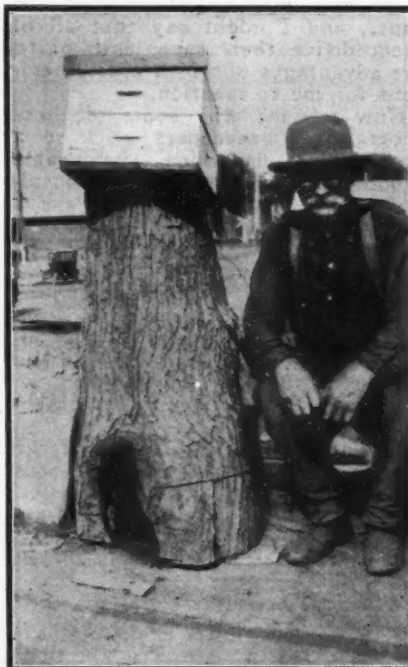
AMONGST the letters enquiring about beekeeping conditions here, the most interesting was from Mr. P. F., of Conastota N. J. I will answer his enquiries first.

The cost of living is pretty high here, but I think a beekeeper will find at once free living for his work and knowledge, and it won't be long before he can earn wages, start apiaries on shares, or establish himself if he has some means. Three years ago I worked in Porto Rico for my living and gained my knowledge of tropical conditions, etc., without spending my money. I am only sorry I did not come immediately to Santo Domingo. I have not traveled on roads yet. We established apiaries on river banks, sea shore or along the small railroad we have here. There are several beekeepers in Sanchez, inside a mile or two, with at least a thousand colonies. Two of these men understand English.

The most serious drawback is the lack of reliable help. Health conditions I do not know, except that I never have been sick, and my health is improving, or I would not stay. California, which I visited four years ago, did not agree with me. I am an old man, nearly 60 years old, and I have not found a native yet who can outdo me in manual work. Do not send me stamps. It is prohibited to export stamps. Every letter is opened by the censor.

About passage: The Lloyd line sails about twice a month from New York, direct to Sanchez, and from there to Santo Domingo City. The same steamer returns within four to six days. Passage is about \$40. My opinion is that the more our countrymen settle here the better it will be for our glorious country.

Three weeks ago I crossed the mountains with three men and a pack mule to establish an apiary in Cabreraz, where we had 80 colonies in hol-



J. H. Warren of Elliott, Iowa, appreciates a bee-tree.

low logs, waiting to be transferred to frames and foundation. The next day I sent two men with a pack mule to the hamlets around to buy all the gasoline cases that they could find, take them to pieces and transport them to the apiary, where we nailed them together to serve for supers. Then I put them to nailing and wiring frames, which had been sent ahead of us around the coast in a sailing vessel, and putting in foundation. I made six bottom-boards and three scaffolds for the transferred colonies out of timbers from a wrecked vessel, which I found plentiful at this part of the shore. For tops I used boards from cases, and on top of the board a leaf of the royal palm to cover the cracks. When we transferred the seventh hive I used the bottom-board from the first one, and so on. Each colony had about 2 or 3 transferred combs with brood and 3 foundations. The fourth day I found a colony queenless and concluded to go back to Sanchez to get a breeder to rear cells. So back I went with my favorite man. I found more work than I expected and other things also kept me from going back until the eighth day. When I went back with my breeding queen in a two-frame nucleus, about an hour after we left the mountains it started raining, and let me tell you it came down in buckets. I wished my friends in southwestern Texas, who are needing it, had the hundredth part of it. I did not have any raincoat and my umbrella was of no use in this downpour. The natives have little clothing and don't feel the rain. It rained continuously. We crossed two rivers, and towards night we reached a saw-mill, where the American manager had a nice waterproof tent. I stopped, had supper and hot coffee with him and borrowed his raincoat to finish the trip. We arrived in Cabreras at 11 o'clock. At the saw-mill I made primary arrangements to have lumber sawed and dressed for supers, bottom-boards, dummies and apiary houses. I first provided for my queen, which I had protected carefully from the rain. I put her on her stand, covered the wire screen with oil cloth and opened the entrance and found the old lady there next day in excellent condition, looking for empty comb to lay in. I found material enough to make 25 supers, etc., and sent to Sanchez for help, which arrived in two days.

I found that the colonies I had transferred (four of them the hands had filled with foundation) had drawn out every foundation and built large pieces of comb on the bottom-bar of the frames which the queen used, and the bees filled the comb with nectar. I did not have lumber enough for bottoms, so I used the top-boards for bottoms and covered the colonies with palm leaves.

I had a letter of introduction to Senor Don Domingo Rosario, in Cabreras, at whose very hospitable home I spent a pleasant day. I am indebted to Don Herman Eckoff, of Mantanzas, for his hospitality and help in my difficulties. Don Herman is a physician

and druggist, speaks fluently French and English and has an unusually good college education. What is mostly to my liking is that he takes an interest in apiculture.

On my home trip over the mountains we had to lift one of the horses and the mule out of a moat into which they sank to their bellies.

This has been the most eventful trip I have had on the island.

Mystic Uses of Beeswax and Honey in Religious Customs of Macedonia

By Rev. Henri Tabustean

EVERYBODY knows that the Catholic Liturgy has a formal regulation to perform the celebration of mass with candles of pure beeswax only. Similarly, for the benediction of the Holy Sacrament, six wax candles must be burning on the altar. The church, in addition, in the admirable ceremonies of Easter eve, sings twice the praise of the mother-bee, queen of the little family that gives us the sweet-smelling beeswax.

A stay of nearly two years in Macedonia has enabled me to ascertain the fact that their orthodox church is not on this matter in any manner behind its Latin sister; on the contrary, the perfumed products of the hive occupy in the Greek liturgy and customs a very honorable place. I wish to tell here, to the glory of the bees, what I have been able to see and learn over there, on this subject.

The first object that strikes the visitor, when entering an orthodox Greek church, is a sort of high, long table, a counter near the door. Upon it are spread 6 or 7 bundles of wax candles, the largest of which are of the size of a man's finger, and about 20 inches long; the smallest, of about the size of a child's finger, are hardly 6 inches long. These candles are of absolutely pure beeswax and their sweet odor scents the entire building. Each member, upon entering, buys one of these candles, according to his or her means, lights it, walks around the nave and the chapels kissing the holy icons, leaving the lighted taper before the one icon which is the more particular object of his or her worship.

There are no religious ceremonies here without the use of those wax candles. I was present once at the funeral of a little girl. Each person held a wax candle in hand and did not extinguish it until after the three prostrations and the touching homage of a last kiss on the poor angel face, in which no life but the next was shining. Here, at the funerals, the dead are always dressed in their finest clothes.

But before describing the cult of the dead, let us tell of the living, and show what place honey fills in divers ceremonies, which are celebrated at births, at the early birthdays and at weddings. I will close by telling what I saw at Christmas.

As soon as a child is born they up-

lift over its head both bread and salt, as symbols of the abundance with which they hope its life will be blessed. Then, to drive away disease and conjure bad luck, they fasten a clove of garlic to its little cap and place an onion under its pillow. Then a large loaf of bread, marked with three crosses and the crust of which is entirely covered with honey, is placed near the mother's bed, with a glass of wine and a glass of honey on each side of the loaf. The following morning the midwife moistens with the wine and honey the lips of the child and the breasts of the mother. As was explained to me, wine symbolizes the strength, the health which they wish to the child and the mother, and honey symbolizes a long and happy life.

The day upon which the child begins to walk alone is cause for great rejoicing in the family, and a very curious ceremony. It is upon that day that they expect the child to reveal the future avocation, and in the following extraordinary fashion: In the center of the largest room of the home, where the entire family is present, they place a large butter-cake, liberally covered with honey. Around this cake they place objects of all kinds, money, wheat, writing material, scissors, trowels, hammers, etc. The young mother then allows the child to leave her arms. The first object that he will seize with his grasping little hands will indicate the profession that he will follow some day. If, happily, he takes to the cake first, it is a sure sign that he will prosper, almost without needing to work—a very desirable thing in the Orient—until the days of the greatest old age.

Every Macedonian wedding takes the form of a real event, not only in the families of the wedded, but in the entire village. The multiple and complicated proceedings which precede, accompany and follow a wedding extend from the Wednesday of one week to Thursday of the week following. The ceremony proper always takes place on Sunday afternoon. I will describe this ceremony only from the matter in which we are interested.

On the morning of the wedding, the groom knocks at the door of the home of his affianced. A choir of young men accompany him and sing: She has shut herself in, the blonde young girl;

What shall we offer her, so she may open the door?

We have given her a vine and grapes
So she might open to us;

We have given her a branch of quince.

She did not open the door;

But we are offering to her a betrothed;

She will surely open the door; yes,
she will open it.

A choir of girls answer from within:

Knock at the door and open it,
brother-in-law,

To see the young bride,

Adorned and standing ready.

The door then opens. The groom

places his foot three times in succession upon the foot of the bride, to signify that she is to submit to him; then he circles her head with a silver thread to signify that she must think of no one else. The bride's mother then offers to the young couple a mixture of wine and honey, and throws to the floor between them whatever they leave of it, saying: In as much as those drops may not be numbered, so your days of happiness."

When the crowd leaves the house for the church, the mother throws at the young couple handfuls of wheat, in sign of abundance. A brother of the groom—there is always a brother of the groom, as the families are very numerous—walks at the head of the procession, holding in his hands a red scarf. The bride is either seated upon a horse or on one of those carts which are usually drawn by slow, black oxen. During the trip, the maids of honor sing the bride's song.

At the church the ceremony consists mainly in the placing and exchanging of wreaths, the nuptial veil being extended over the couple during the entire time of benediction. The rings have already been exchanged at the time of the engagement.

At the end of the ceremony the crowd meets at the home of the young man, where the wedding banquet is held. It would take too much space to describe this.

The next morning the bride's mother calls for her daughter's undergarment, which is examined to establish the undoubted honor of the young woman. A dance is organized and the crowd sings "The Honor of the Chemise," while drinking brandy sweetened with honey. (Compare with Deuteronomy xxii, 13-20.—Translator.)

The precious garment is placed in a casket and brought to the home of the bride's parents. There is served a breakfast composed of honey and cheesecakes. A larger cake of the same kind is divided into 4 parts, for the bride, the groom and the parents of both.

After this meal the young woman accompanies her husband to the forest, or to the wood-pile, where he is expected to cut, with a single stroke, whatever piece of wood he attempts to chop. If he succeeds, it is a sign of happiness. The young woman then prepares the noon meal for themselves alone. After that meal they visit every room of their home, and in each room make a triple sprinkle of holy water. Then a great honey cake is brought, ornamented with three branches of quince, and all withdraw after having partaken of this symbol, perfumed for a sweet, and long life.

The Cult of the Dead

As soon as the moribund dies, the oldest member of the family ties its jaws with a handkerchief and closes its mouth with beeswax. Then they place within the joined hands a small cross, made of beeswax also. They then hasten to prepare the "collybes" (Greek Kollis, round loaf), or fu-

nereal cakes, which are made of a mixture of boiled wheat, dried fruits and honey. The funerals are conducted within the day following. During the psalm-singing and the prayers, the priest swings the censer over the corpse and over the assistants. After three prostrations, the friends and relatives kiss once the face of the deceased. The coffin is closed at the arrival at the cemetery and only after the eldest of the family has untied the chin and loosened the garments of the dead, whose soul is to be liberated by their prayers. The body, when lowered into the grave, is sprinkled with libations of wine, oil and honey. This impressive ceremony, which I often witnessed, reminds me of the passage of Odysseus, where the divine Ionian songster shows Odysseus invoking the shadows while pouring into the grave, dug with his sword, libations of milk, honey and wine (Odyssey xi, 27). Achilles, also, is shown placing near the funereal bed of his friend Patroclus amphoræ or jars filled with honey and oil (Iliad xxiii, 170). Honey, which is for the living a symbol of long life, as mentioned previously, evokes towards the dead the thought of eternal life, immortality. Herod reports that the Babylonians embalmed their dead in honey (i, 198), and that the Persians covered the corpses entirely with beeswax to preserve them (i, 140).

The funereal feast is served about the still open grave. The guests divide among themselves the "collybes" and eat holy bread dipped in honey or in wine. A similar ceremony is performed the 3rd, 9th, 15th, 21st, and especially 40th day after the funeral. The collybes will on those days be distributed at the gate of the cemetery. At the head of each tomb may be seen an earthen tube and a flat stone, often sheltered with a small arch. On this stone they light a wax candle or an oil lamp. The tube receives the libations, incense and collybes, the share of the departed. Every Saturday, for three years, they will be faithfully brought to this grave. In the third year they celebrate a second funeral. The exhumed bones are carefully washed in wine, placed in a little casket and deposited in the ossuary of the cemetery.

Christmas Eve

The eldest of the family has previously brought from the forest a "badgnath" or Yule log. It is brought to the home with solemnity. On each side of the door, two wax candles are lighted. The master of the house and his wife throw a handful of wheat at one another and drop some on the Yule log. Then the latter is completely coated with honey. All the members of the family, after kissing one another in pairs, lick the honey from the sacred log. It is then laid in the fireplace and the housekeeper goes out with the children. She soon returns bringing a little bundle of straw, walking about the room three times, while imitating the call of the mother-hen. The children follow her, answering with the imitation of the chicks, peeping, and catching blades of straw which

they drop on the floor. Then all sit down and have a feast. The Yule log is not allowed to burn itself out, but a portion of it is preserved for the ensuing year.

Written at Salonica, Sept., 1918.

Translated from L'Apiculteur.

The Langstroth 13-Frame or Square Hive

By C. F. Davie

FEW observations noted in the operation of the Langstroth 13-frame hive may not be amiss at this time, when discussion is rife as to the desirability of utilizing large hive-bodies. I commenced beekeeping with the ordinary 10-frame hive, but, having realized these do not provide sufficient brood-space, I recently decided to adopt something bigger. While appreciating all that has been said for the Dadant hive, I preferred to have a style which would accommodate the same size frames already in use, and thus enable the free interchange of my drawn combs. Accordingly, last winter I made up ten large 13-frames—veritable barns. When finished I contemplated them with much satisfaction. They are 20¼ inches square and accommodate 13 frames snugly, with a nice quarter of an inch to spare on one side, to permit of easy manipulation. Fancy that great box full of bees, thought I. Fancy, also, the large entrance, running the full width of the hive, as a means of ventilation. And then, if I desire, I can give my square boxes a quarter turn and winter my bees on the warm plan. I waxed enthusiastic. With more than sufficient brood-space, according to the Dadant calculation, I ought certainly to have the minimum of swarming, and the queens would stay below without the use of excluders.

But the anticipated results failed to materialize. Far from it. As a swarming preventive, the barns were an egregious failure. As a means to keep her Ladyship out of the supers, they were equally futile. The first swarm of the year went out of one of my barns. Curious, thought I—thirteen frames below and a super of an equal number of shallows above could not possibly be filled by the end of May. And this conjecture, at least, was true. There was nothing in the super, and several outside frames below had still untouched foundation. The second swarm of the year went out of another of my barns. And it was **some** swarm. Unfortunately, I was absent on business when the event came off, but my wife says it was the largest she has seen or ever expects to see. She made heroic efforts to capture it, even cutting down a tree the swarm had settled on, but the bees went to a still more inaccessible place, camped all night, and departed the next day. Curious again, thought I. There were two supers on this hive. I opened up and found the foundation in four outside frames below untouched, but brood in the central part of the two supers.

Having now found the facts, let us apply the law, as the judges say. I

stated that, according to the Dadant calculation, I had more than sufficient brood-space. This is true. But I had half of this space in the wrong place. That brood-space should undoubtedly be in the center of the hive, not branching out sideways. Her Ladyship will branch sideways for a matter of five or six Langstroth frames, after which, if not excluded, she goes up stairs in preference to leaving the center of the house. Even with an excluder, I fancy I could not get all that row of thirteen frames occupied by the bees, let alone the queen, unless, perhaps, I spread the brood every little while.

In my experience, therefore, the barns do not justify their existence, and the practicability of the Dadant hive, with deep frames to accommodate an amplitude of brood space in the center of the habitation, becomes significant. This coming winter I propose making Dadant hives for use next season, and this time next year I hope to announce the result of my operations with these hives, as a means of reducing swarming and obviating the use of excluders.

British Columbia.

(Good! But bear in mind, please, that the prevention of swarming is not **all** in large hives. There are other conditions necessary. Even then, as Dr. Miller says: Bees never do things invariably.—C. P. D.)

Electrical Imbedding

By Will H. Gray

BY using the following method, imbedding becomes "a thing of beauty and a joy forever." The actual time taken to imbed the wires is about two seconds and the work done is perfection. The first method is for those having at their disposal electric light, either direct or alternating current, from city mains or private lighting system.

Take the cord belonging to a toaster, iron, or other similar device, and cut one strand of the twisted cord and unravel a foot each way. Then pare the ends, exposing the copper, and twist them each round a nail in the end of two short sticks which just act as handles. Now connect up your cord and toaster or other appliance, when it will be apparent that by touching the nails together you complete the electrical circuit and the appliance heats up. Now, instead of touching them together, touch the beginning and ending of your wired frame, which is, of course, resting on the imbedding-board, and the wires will immediately sink into foundation, all at the same time. If the frames or foundation are uneven or light weight a slight pressure may be necessary to bring the wire exactly to the mid rib, where it should be.

Now, if you have not got the lighting system, but have a car with a storage battery, you can do equally good work, but you will not need the toaster, as the wire itself will act as sufficient resistance. Only in this

case be careful not to touch the nails together, or you will spoil your storage battery.

I have not tried it out, but I think a Ford magneto would do the same work, only it would hardly pay to keep the engine running during the operation.

Electrical imbedding with high voltages is just a matter of having the correct resistance in series with

your foundation wire. Resistance can easily be made for the purpose from iron wire wound on a framework of nonconducting material.

If the diagonal system of wiring is used, the current must be applied twice; that is, at each end of the straight run, otherwise the current would turn back when it touched the other wire at the middle point.

British Columbia.

BEEKEEPERS BY THE WAY

Millen, of Ontario

F. ERIC MILLEN, recently from Iowa, but now of Ontario, is generally recognized as a coming man in the beekeeping field. As a graduate of the beekeeping course of the Ontario Agricultural College, under Morley Pettit, Millen was, perhaps, the first man to specialize in beekeeping during his college career and follow up this special training in charge of similar work in another institution. Soon after his graduation he was selected to take charge of the beekeeping work at the Michigan Agricultural College. His work there was just beginning to come to public attention when he resigned to take the position of assistant professor of beekeeping at the Iowa Agricultural College at Ames. At about the same time the new law creating the office of State Apiarist went into effect and Millen was selected for that position also.

There is a good deal of action at the Iowa College and it takes a live one to get any particular attention there. However, Millen soon had everybody in town talking about bees. The war was in its early stages and many new activities were started looking toward increased food production. Millen asked permission to give the girls in the domestic science department a special course in beekeeping, since many of them were from farm homes, where bees are kept. He was informed that the girls would not be interested in bees, but that he could make up a class composed of the few who could be induced to undertake the work. The class started with about half a dozen, but it grew larger every day until there were a hundred taking the beekeeping course. As the apiary was beside the trolley line, the whole town was soon talking about the bee class of college girls and the way they handled the bees. It was not long until several faculty members were attending this course also.

When Millen decided on a correspondence course, he was told that if he could get a couple of dozen students for it, the course would be worth while. He had more than three hundred taking it shortly.

Millen has that happy faculty of inoculating others with his contagious enthusiasm. Not only that, but he is thorough-going and practical.

His is not the type of booming that makes everybody think they can get rich with a few bees in the attic. He gives the impression that beekeeping is a dignified calling worthy of serious attention, and makes a fellow think that he must master the thing or get out of the game.

During recent years he has maintained apiaries in Michigan and Iowa for commercial honey production. In this way he has kept in touch with the practical work while adding to his income. When it was recently reported that Millen had resigned his position in Iowa to return to Ontario as head of the department from which he graduated, there was general regret among Iowa beemen.

We happen to know that several institutions had their eye on Millen. There is also plenty of activity in his vicinity, and while the Ontario bee department has always ranked as among the best, it is confidently expected that Millen will arouse new interest in the work.



Millen of Ontario.

Shade for Bees

IT was the late E. W. Alexander who first observed that colonies under a dense shade did not build up in spring as would those more exposed to the sun's heat. Others have found dense shade at that time detrimental to the welfare of bees only in the early and cool part of the day. Colonies, therefore, placed to the east of trees or buildings, did as well as those in the open.

Contrary to all such experience, some of our strongest colonies, producing the highest yields, were situated snugly against the west side of a building. This is but an isolated case, however, and does not prove that bees do not generally need the morning sun.

Hives with a single thickness of board for cover should, on the other hand, never sit directly in the hot sun, through the warmest part of the summer. Fortunately, such covers are gradually being replaced by the double kind, which do not warp and twist, and that have an air-space between, keeping the inner one, at all times, comfortably cool.

L. E. KERR,
Ft. Smith, Ark.

Honey Production for Home Use

By C. T. Ohlinger

ONCE asked an old farmer why he didn't keep bees in order to get some honey for family use. He recalled that his father killed all enthusiasm for beekeeping when he cautiously advised "My boy, if ever you want to see your money fly, just keep pigeons and bees." The inference was that neither brought any money. I'll not stop to contradict such a sweeping statement. There are farmer beekeepers who get little or nothing from their bees. It's not the fault of the bees.

In the first place, it must be remembered that not every section is adapted to honey production. In some parts of the country bees scarcely make a living, to say nothing about a surplus they might store for their owner. Then, again, the question of quality must be considered if the honey is to be sold to storekeepers or private customers. At present I am in a locality where these conditions obtain. The so-called Eastern shore of Maryland is not a clover belt, the main crops being wheat, corn and tomatoes. The forests consist of pines and oaks, very few, if any, basswoods. To go into extensive beekeeping in such a locality would, indeed, be a waste of time and money. Yet we are not without bees. There's a "sprinkling" of hives throughout the whole peninsula which is not devoid of honey-producing flora, such as locusts, wild flowers, sweet clover, etc.

Now I find, traveling up and down the State, that many farmers still cling to the old and much-decried box hive. They have the shape of a chimney, one foot square and four feet high with two cross-sticks in the middle to hold the combs. Most

of them are old relics and heirlooms of days gone by, bought at public sales with the bees in them like a cat in the bag. Some are of recent construction. Not long ago I caught a farmer beekeeper in *flagranti* sawing out the lumber for one of these makeshifts. Of course, he didn't know what he was doing.

I told him that I very much preferred the old logs cut out of a beehive, since they were not apt to warp or show any cracks. He couldn't understand why I objected to a hive of such simple construction, since he always managed to cut a dishful of honey out of it in the fall. To convince me he opened one in which the bees were working "right smart." Of course, the bees were working from the bottom up, struggling to fill the gap between the cross-sticks and the cover made by the previous "cutting."

He had never heard about shifting the hive to another place after the swarm issued and putting the new swarm on the old stand. Getting surplus with this man was very much like being lucky.

Others again, I find, are using modern hives without a bit of foundation. The combs in them are built criss-cross and are left that way. They never have the intention of moving a frame for the sake of inspection or manipulation. The bees see to it that their brood-chamber becomes a sealed book to the farmer. Of course, a super is put on. Just when to do it is a matter of speculation. I remember one day in July, as I was bringing a load of new comb honey to market, a man who kept over a dozen hives asked me to sell him some foundation so that he might put on his supers to get the new crop. It is evident that keeping bees is equal to "seeing your money fly" when managed in such a way.

I could never understand why some farmers persist in using a comb honey super instead of a plain ex-

tracting super, half depth size, when they want honey merely for their own use. A super fitted out with open frames and foundation is entered more readily by the bees than a comb-honey super with its many little compartments. Swarming is also deferred, if not given up altogether. Thus the matter of surplus is not quite so problematical. The honey can be cut out of these frames and packed into glass jars. If it's stored away in sections there is a chance for the moths to ruin it. Besides, the honey gets an unappetizing appearance if stored in sections that are used several seasons.

Cambridge, Md.

The Naming of Nails

By J. A. Green

THE article by Major Shallard, in the August number, and the editor's comments thereon, are interesting to me and I would like to pursue the subject a little further.

In the first place, I think our names for the sizes of nails are not distinctively United States, but something we have inherited from England. If the Australians use another system, they have gotten farther away from the mother country in this respect than we have.

There is another explanation for the origin of our way of naming nails than the one given by the editor. Both are recognized by the Standard Dictionary, but the one I shall give I consider the more reasonable of the two: When the English nail maker hammered out his nails by hand, he called the nail, a thousand of which would weigh ten pounds, a ten-pound nail, or in his dialect, a ten-pun nail. If a thousand weighed four pounds, it was a four-pun nail. Ten-pun easily became ten-punny, and that was readily changed to ten-penny, as we have it now.



Bringing home the honey. We have lost the name of the boy, as well as of the photographer who sent the picture.

I know nothing of Australian trade customs, so I must admit that Major Shallard is probably right as to the way their nails are named. Yet I cannot help wondering if he is not mistaken in some respects. In the United States the small wire nails so much used by beekeepers, as well as some of the "standard" sizes, are listed both by length and diameter. Thus I have nails that are 1¼x16 gauge. The nail that is probably most used by beekeepers is 1x18 gauge. You will find this on the package. Some lists will say that it is made of No. 18 wire. Sometimes it is called simply a 1x18. This does not mean that it is 1-18 of an inch in diameter, but that it had been made of 18-gauge wire. As a matter of fact, it is about 1-20 of an inch in diameter.

But when we come to talking about wire gauges, we come to "confusion worse confounded." The Americans have one standard of wire gauges and the English have another. In fact, the English at one time had two, and I am not sure that they are not both still in use.

Grand Junction, Colo.

An Expensive Friend

By Dr. J. H. Merrill

State Apiarist, Kansas State Agricultural College

DURING the last week of May and the first two weeks in June, the variegated cut-worms appeared in Kansas in such large numbers that they took upon themselves the habits of the army worm, in fact, they were commonly called army worms. They devastated a large acreage of corn and alfalfa throughout the State, doing an enormous amount of damage. The parasitic tachinid flies took advantage of this sudden abundance of food and proceeded to parasitize these worms, very heavily. By so doing they proved themselves to be a friend to the farmer. But they began to emerge from the cut-worms just as the white sweet clover was coming into bloom. It was a very

favorable spring, in Kansas, for the production of nectar-yielding flowers, and all of the beekeepers over the State were looking forward to a very successful season.

After leaving the cut-worms, the tachinid flies immediately proceeded to take on the habits of bees, and spent most of their time gathering nectar. Counts were made of patches of sweet clover, over various parts of the State, in order to find out the relative proportion of the tachinid fly to bees in the sweet clover. These counts show a range in proportion from six flies to one bee up to as high as forty flies to one bee, and very often it would be noticed that a bee would come to a patch of sweet clover on which the flies were busily at work, and then, on finding the flies there, would leave almost at once, having secured no nectar. In several cases the length of time that it took a bee to gather a load of nectar was recorded, and it was found that it required twenty-three and one-half minutes for a bee to secure enough nectar to start back to its hive. The number of heads of white clover which each bee would visit before it had gathered a sufficient amount varied, but in some instances they visited as high as 110 blossoms before completing their load. The result of this has been that, even though the beekeepers had strong colonies, the presence of the fly so reduced the supply of nectar that the most the bees could do was to secure enough to continue brood-rearing. Practically no honey, though, was stored in the supers. The bees were very reluctant to draw out the combs. Early in July the drones were driven from the hives, seriously interfering with queen-rearing. When the flies were caught and examined, their stomachs were found to be filled with nectar.

While this fly has proved to me a great blessing in ridding the fields of the cut-worms, it has very seriously affected the amount of honey that would be stored from the summer plants in Kansas.

Manhattan, Kans.

Hares and Bees

By A. F. Bonney

WHILE in Fort Dodge recently, after attending a meeting of beekeepers in Ames, I called on an old-time friend, Mr. E. E. Townsend, who, as most Iowans know, is a progressive and enthusiastic beekeeper, and I found him with the Belgian hare fever well developed, and he did not do a thing but inoculate me.

Seeing him at his home in the suburbs of Fort Dodge with his rabbits, chickens and bees gave me an insight into what an energetic man can accomplish, if his heart is in his work. Mr. Townsend has, I think, between 200 and 300 colonies of bees, great numbers of prize-winning Plymouth Rock Chickens, and now the hares. Incidentally, he has one of the nicest wives a man ever raised and seems to appreciate the fact. These good people are in their early old age, and filled with ambition and vigor.

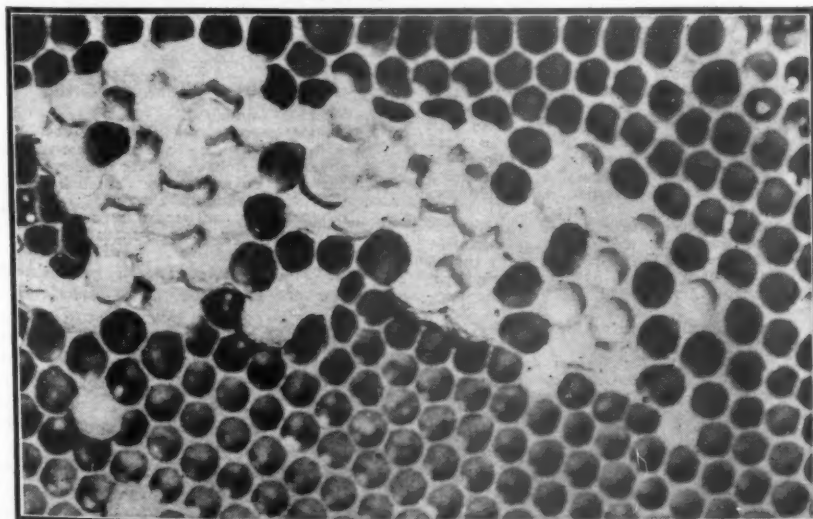
But about hares: What Mr. Townsend showed me set my alleged brain to working, namely a big brooder-house of baby Plymouth Rocks which would average about 12 ounces in weight. Next some fine Belgian hares which weighed a matter of 4 pounds each. The chicks were hatched the same day the hares were born, but it had cost a cent an ounce to raise the chickens, and about a cent a pound to raise the hares. A ratio of 16 to 1, "without asking the consent of any other nation on earth."

Mrs. Townsend, when she learned that I know how to cook, said:

"It is largely in the cooking, Doctor," meaning the palatability of the hare meat. "I," she went on, "soak the meat over night in salty water, then put it on to cook in water containing a piece of salt pork; let this water boil away, and finish by frying in the pork grease." I ate a meal with my friends and can testify that Mrs. Townsend also knows how to cook.

I intend to begin this summer with hares, as Mr. Townsend has offered to let me have a pair of registered animals at a fair price, and I am only waiting until he has them ready to ship, and as others besides myself may want to commence with them, I will state that in my opinion they will go well with bees. They do not require 5 per cent of the time chickens do, take vastly less room, do not scratch up the garden, are cleanly and prolific and the meat, if properly cooked, is as good as that of chickens. There is a good demand for them, which can be increased by advertising, and this can be done on the same slip your honey is sold about. As to feed, a bale of hay and a bushel of oats, with now and then a carrot or some cabbage leaves will keep a hare all winter, while in the summer one can cut grass and clover for them. Compare this with feeding a chicken.

Year-old chickens are worth now, at retail, 25 to 40 cents a pound. A person could sell hares at 10 cents



Stretched cells filled with drone brood as a result of sagging combs. This emphasizes the importance of careful wiring of frames when putting in foundation.

a pound and make more money than the farmer does on his chickens.

A box 36 to 40 inches square and 24 inches deep, with a tight cover, of shingles or tar paper, a door about 18 inches square, covered with strong screen wire 4 to 6 meshes to the inch, and an inner box 16 inches square for the hare to stay in, are all that is needed, except that this

box should be set two feet or more from the ground. There are books published which give detailed information regarding breeding, color of prize stock, markets, etc., which can be purchased at nominal prices, and these may be consulted. This article is not intended to be scientific, but to serve as a hint.

Buck Grove, Iowa.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer beekeeping questions by mail.

Queens

1. What is the average capacity of all your Italian queens, as near as you can tell offhand, expressed in number of frames of brood in height of season?

2. What should the brood-frame capacity of a breeding queen be? Of course this implies that she has all other desirable traits.

3. How soon is it possible for a virgin to fly after hatching? That is, if she is not the first one to hatch at swarming time.

4. In your experience, what was the age of the youngest virgin that ever led off the first, secondary or afterswarm in a given colony?

MICHIGAN.

ANSWERS.—1. Seven or eight frames, the brood-chamber containing only eight frames during the harvest. Earlier they occupy more.

2. Maybe 15 frames.

3. If she is not the first one she is likely to be able to fly the minute she gets out of the cell. Indeed, she may be able to fly before that, since any virgin after the first is likely to be held in her cell for some time.

4. I don't know. My experience in that regard is exceedingly limited, having scarcely ever had an afterswarm.

Shade Boards

Could you give me some idea of how to make a hive-stand with a cover to keep off the rays of the sun? WISCONSIN.

ANSWER.—You can shade your bees by a cover made on the shed-roof plan. Take a piece of stuff long enough to reach from the east to the west side of the hive-cover—this piece to rest on the hive-cover at the north side—and on this piece nail the ends of shingles or cheap boards such as you may obtain from broken-up boxes. It will be better if the shingles or thin boards project at the south side so as partly to shade the south side of the hive. Put a stone on top to prevent the wind from blowing it away. Or, you can do another way if you have some long grass at your disposal. Mow the grass and put a small armful on the top of the hive, weighing it down with one or two sticks of stovewood.

Wintering—Feeding

1. I am trying to find out the best way to winter bees on their summer stands. I read in a journal, to place a hive on the bottom-board, filled with empty frames, an inner cover on top, with 2 holes bored in front for ventilation, then the hive of bees set on that, with a tray on top filled with dry leaves. My idea is to drive four stakes at the corners to make a space of about 5 inches all around and fill it with dry leaves, holding this down with paper, tacked, but leaving the entrance open in front; or would you winter in one hive with tar paper around the same?

2. Is it best to feed in open, or feed in the hive, or in what manner? Will it do to feed them all they will take? NEBRASKA.

ANSWERS.—1. The plan you outline ought to bring good results, provided outdoor wintering in your region is best.

2. Your bee-books should give you full in-

struction about feeding, and this department is not to take the place of books, but to supplement them. Feeding in the open is a little more like the natural gathering from the field, and on that account is to be preferred if there are no bees from other apiaries to share with your own bees. It may be all right to feed the bees all they will take, and it may not. Sometimes they will continue taking feed until the combs are so full that there will not be room for the queen the following spring. But there isn't much danger of that unless more than 40 pounds of honey and syrup are in the hive. It will be better if the bees have stored enough honey so no sugar need be fed. If you have a good cellar it may be that your bees would do better in it than outdoors.

Laying Workers

Can you explain the presence of laying workers in the super of a queenright colony?

On August 6 I killed the old queen of one of my colonies, and at the same time introduced a new queen in a mailing cage. August 17, I inspected the hive and could not find the new queen. There were no eggs nor young brood, but there was one ripe queen-cell. I then inspected the super to see if the queen could have squeezed through the excluder. I found drone-brood at all stages in both drone and worker cells. Also many dwarfed drones, which indicated that the laying workers were present before the old queen was disposed of.

I suppose the laying workers were the cause of the bees not accepting the new queen.

There was no sign of laying workers in the brood-chamber.

DISTRICT COLUMBIA.

ANSWER.—This seems exceptional beyond precedent, and I haven't the remotest idea why it happened.

Caging Queens—Equalizing Weaklings

I save all possible bees to rear brood for the clover flow, then double up all the weaker ones with stronger ones, then remove all queens and form nuclei. This way there will be no new larvae to eat up the surplus until they rear a new queen, which will take them safely beyond the honey-flow. I notice some suggest caging the old queen for this same purpose, until the honey-flow is over.

1. Would the bees work as well while forming a new queen as they would if the old queen was caged in the same hive with them?

2. When you double up a weak swarm with another in the same apiary, will not the bees go back to their old stand?

3. Do you, in all cases, prefer "leaving it to the bees"?

4. Which covering for frames do you consider the best, burlap, ducking or oil cloth?

5. How about equalizing weaker swarms and nuclei by giving frames of brood from stronger ones—is it advisable? OHIO.

ANSWERS.—1. My guess would be that the bees would work as well while rearing a new queen as they would with an old queen caged.

2. Yes, with no precautions the field bees are apt to return to their old location. This can be partly or wholly prevented by using

the newspaper plan for uniting. Put a sheet of common newspaper over one hive, and over this set the other hive. The bees in the upper hive cannot get out until a passage way is gnawed in the paper, and by that time they are reconciled to remain in the new place.

3. By no means would I always leave everything to the bees. Indeed success depends chiefly on knowing just what to leave to the bees, and how to interfere with their notions. To leave everything to the bees would spell practical failure, for much of their strength would be dissipated in swarming instead of gathering.

4. Hard to say; but for many years I have preferred to have neither, merely having an air-space between the top-bars and the board cover.

5. It may be advisable, provided all can be brought up to good strength for winter.

Pasturage

1. I am a beginner and have ten colonies of Italian bees that will go in winter quarters strong. I live in a little town and am the only man who keeps bees here. I would like to have about one hundred colonies or more, and am quite sure there is not enough nectar right here to make beekeeping a paying proposition, but about one and a half miles from here there begins a swamp full of vines, lilies and other honey-producing plants. Do you think my bees would go to that swamp, and that it would be a paying proposition to have one hundred colonies here?

2. Is the water lily a good honey-producing plant?

LOUISIANA.

ANSWERS.—1. You've picked out one of the hardest questions in beekeeping. In the first place, I'm hardly ready to take your word for it that 100 colonies could not find enough to do at your home, without going as far as a mile and a half away, although the probability is that you are right. In the second place, it's such a hard thing to find out that you will probably never know to a certainty if you keep bees for a hundred years. One year you may get a good crop with 100 colonies, and yet you cannot be certain whether you would have had more surplus with 90 or 110 colonies. Seasons change so that 100 colonies might do well one year, and 50 starve the next year. So no one can tell what number on the average would be profitable. But I should feel safe in saying that your bees will work almost or quite as well on pasturage a mile and a half away as on the same field half a mile away, and it is quite possible that 100 would be none too many in your home apiary.

2. I don't know. It is very fragrant, but I've never heard of honey in quantity being secured from it.

Foulbrood—Queens—Moths

1. What is foulbrood?

2. What is meant by a virgin queen?

3. In what way are queens changed, and what effect does it have on the workers?

4. Can comb be used more than one year in succession if thoroughly cleaned?

5. In what way can moths be avoided? In what way may they be prevented?

WISCONSIN.

ANSWERS.—1. Foulbrood is a germ disease that attacks bees in the larval state. If it slips in on you without your knowing what it is or how to handle it—good night. Better get a good bee-book that tells about it, or write to Dr. E. F. Phillips, U. S. Department of Agriculture, Washington, D. C., and ask for free literature about foulbrood and its treatment.

2. A young queen that has not yet mated with a drone.

3. The queen present in a colony may be removed or killed, and another introduced through an introducing cage. The effect on

the workers will be an utter change in something like nine weeks, the progeny of the old queen dying off in that time, if it is in the working season, and all the workers in the hive being the progeny of the new queen.

4. Yes, a comb in the brood-chamber or in an extracting super may be used 20 years or more without cleaning, except that extracting combs should have all the honey cleaned out of them each fall by the bees.

5. I don't know how you can entirely avoid having any moths except by keeping no bees. You can prevent their doing any great harm by keeping colonies strong and of Italian stock.

Bee Tree—Hiving Swarms

1. If I find a bee tree in the woods, do I have to get permission from the owner to cut it down?

2. A neighbor near us had a swarm of bees come out this year. He hived them five or six times but they came out and lit on a tree; so he gave them to a man who was working there who hived them and they stayed. What was the reason they wouldn't stay in the first hive?

3. What is the most profitable, comb or extracted honey? IOWA.

ANSWERS.—1. Yes.

2. No telling for certain, but the probability is that it was too hot for the bees. A newly-hived swarm should be shaded by some means and have abundant ventilation, perhaps by raising the cover half an inch or more and raising the hive on blocks.

3. In some localities one, and in some localities the other. Even in the same locality it is not always alike. Last year extracted was more profitable in many a locality where comb honey had previously paid better.

Peculiar Behavior of Bees

I have 10 colonies and two of them seem to have a funny habit. They are this year's swarms and have their hive-body full of honey and brood. The supers have sections with full sheets of foundation in them. There are lots of bees in the supers, but they don't seem to work very fast. I am sure there is plenty of honey in the fields. What I can't understand is why quite a few bees sit around on the platform, or alighting board in the daytime, and act as they were trying to cut, or bite the paint or wood. They will lean as far forward as they can and then back without going off their hind feet. All the while they will have their two front feet going back and forth. What do they think they are doing? MICHIGAN.

ANSWER.—The probability is that your bees are all right. If the brood-chamber is full of brood and honey they certainly have been gathering, and if later they have been doing little in supers it may be there is little in the field for them to do. The fact that flowers are in bloom is not proof that nectar is plentiful, for sometimes the bloom will be plentiful yet yielding no nectar. Their funny actions in moving back and forth at the entrance is called "raking." I don't know why they do it, and never saw any satisfactory explanation for it. But if you are observing you will see it every year at almost any hive.

Transferring—Location

1. I have ten hives of bees; five are in old-fashioned home-made hives. Two of the five have movable frames. The other five are in new hives in which full sheets of foundation were used. I would like to get the bees out of these old hives and by next fall increase to 20. Of course I want to get all the honey I can. I have no comb built out but would use foundation. I don't like to transfer by cutting the combs out of the old frames and fitting them in the new. I would make the increase artificially and would buy laying queens.

2. In "Forty Years Among the Bees" you say that if you were starting over again you would hunt some time to find a place where they had two flows—summer and fall flows. If a young man is intending to make beekeep-

ing his sole occupation, would you advise leaving Wisconsin and hunting for a better place? The last two years have been very poor here in Southern Wisconsin.

ANSWERS.—1. As you want to avoid patching combs and as the swarming season is now past, perhaps your best way will be to wait till next year. Then, when a colony swarms, hive it in a movable-comb hive, setting it on the old stand with the old hive close beside it. A week later move the old hive to a new stand. Two weeks later still, or three weeks after swarming, there should be in the old hive only a little quite young brood, when you can chop up the old hive, melt up the combs, and crush the bees into the other hive, or else brush them onto frames of foundation in a new hive.

2. If you are in an average Wisconsin location it is somewhat doubtful whether it would be advisable to leave the State. At any rate, better not make any move until you have personally visited the new location, whether it be five miles away or a thousand, and are thoroughly satisfied the move will be advantageous. Some have left Wisconsin for what they supposed a better location, and then have gone back and settled contended in the old home.

Profit From Bees

1. You say that \$5 profit is all that can be made out of a hive of bees, and 100 colonies is all one man could keep, so it seems that one could only make \$500 a year, with chance for a failure in a bad season. I thought one might be able to keep 600 colonies and have about \$10 on a hive. I thought of taking up beekeeping as a business, but if such as you say I want nothing to do with it.

2. What hours of the day do you work with your bees?

3. What was the amount of the Dadants' crop for 1918?

4. What was your highest average crop and your lowest, per colony?

5. Do you think beekeeping would pay for a man with a large family, when food prices are now so high? ILLINOIS.

ANSWERS.—1. I have no recollection of having made such an unqualified statement, and if you'll give the place where I made it I'll be ready to reply.

2. If only a little is to be done, the middle of the forenoon is a good time; but when there is enough to do I work from daylight till dark or after dark.

3. The Dadant crop was short in 1918.

4. My highest average was an apiary of 72 colonies; 266 sections per colony (244 pounds.) My lowest was years ago, when the yield was an utter failure and I had to feed for winter.

5. Men have succeeded, and probably will again succeed, in making enough from bees to take care of a large family. To be sure, everything is high now, but so is honey. The man, however, who makes a success at beekeeping is not so likely to be the man who says he will have nothing to do with it unless assured a certain amount, as the man who cannot be pried away from his bees even if he thinks he will keep them at a loss. The successful beekeeper is the one whose whole soul is in the business.

(There are several beekeepers who made as much as \$20,000 in 1918.—F. C. P.)

Deserting Bees

1. The latter part of July I noticed nearly all the bees of one hive were clustered on the outside, and there was honey dripping out, so I raised the top a little to give more air. A few days later I investigated and found the hive deserted. The super was nearly filled with honey and there was ample stores below, but none of it capped. The honey had a slightly sour smell, was thin and foamy. Each cell was overflowing with this foam like a can of fruit that had spoiled. They had an abundance of sealed brood, but no eggs nor

larvæ, and the moths had made considerable progress in the brood-nest. This was my best swarm of bees; it was extra strong. Now I would be glad if you would tell me what was the trouble, and why did a strong swarm of bees let the moths come in?

2. Are the bees clustered on the outside of the hive working bees or are they young bees?

3. Do bees sleep? TEXAS.

ANSWERS.—1. I don't know what the trouble was, but I suspect that one part of the trouble was in the character of the honey. I have read of cases in which the honey worked as yours did, presumably because of the honey from certain plants or decayed fruits; but I don't know what the plants were. Perhaps another trouble was queenlessness, the moths coming in after the colony had dwindled away.

2. They may be of any age, older bees predominating.

3. I have read that they do.

Cellar Wintering

1. How large a space is used over the frames when wintering in the cellar?

2. What is used to keep the bees in the hive while they are being put in the cellar?

3. When is the best time to put them in?

4. Would a super filled with leaves on a hive in the cellar make them restless? If so, why? WISCONSIN.

ANSWERS.—1. Probably not all the same. In my own hives the space between top-bars and cover is the same as on the summer stands—about one-quarter of an inch.

2. Nothing. The bees are supposed to be so quiet and so quietly handled that they do not come out of the hives to any extent. If, however, it is desired to fasten them in the hive, a large cloth, dripping wet, may close the entrance.

3. If you can guess nearly enough as to what the weather will be, take them in the next day after their last flight. In Wisconsin that is likely to be in December, or very late in November.

4. It would not be likely to make them restless.

Black Drones

I have an extra good colony of bees. Workers are all bright, evenly-marked Italians, not a black bee in the hive, but—what I want is advice. Some of the drones are as black as coal. Would you advise breeding from this queen? It is about the best colony I have in a yard of forty. I would like to rear some young queens from it if it was not for those black drones. TEXAS.

ANSWER.—Don't worry about those drones. Either drones or queens of Italians may be very dark; but if the workers are all right they are counted pure.

New York Field Meet

Nearly 750 New York beekeepers gathered at the farm apiary of De-roy Taylor, Newark, August 1, where they listened to nationally known speakers and witnessed demonstrations in handling foulbrood. Prices for honey were recommended by a State committee headed by S. D. House. Speakers were: O. L. Her-shiser, Kenneth Hawkins, G. C. Porter, State Marketing Bureau, E. R. Root and George H. Ray. Mr. Her-shiser was chairman, Mr. Hawkins spoke on fall management, Mr. Root on California disease conditions, and Mr. Ray on his extension work in the State. Co-operative marketing of honey was considered by members after Mr. Porter's talk. A picnic luncheon was a feature of the day. A winter meeting of the Association is to be held later.



MISCELLANEOUS NEWS ITEMS



New Jersey Beekeeping

The "Proceedings of the New Jersey Beekeepers' Association" for 1918 and 1919 is before us. It would be difficult to put more useful and interesting information in 40 pages than there is in this neat pamphlet, which does not bear the name of the man who compiled its contents or looked after the execution of the work. It contains about 20 addresses, all, or nearly all, by competent men who have something to say. It can probably be secured by addressing E. G. Carr, New Egypt, N. J.

A Good Report for Caucasian and Carniolan Bees

The honey crop of this section is very short and of poor quality. There has been more disease among bees than usual, too.

Am receiving \$6 for 24-pound case of honey and could get more if I asked it.

Extracted honey is selling for 25 cents per pound.

The largest crops of comb honey are from the beekeepers that had the Caucasian and Carniolan bees, while the ones having Italians and hybrids are reporting small crops.

A good fall flow is expected.

W. W. LANTIS,
Perry, Mich.

Bee Laws of Florida

The Bee Disease Act, approved June 9, 1919, vests in the State Plant Board of Florida the authority to enforce the law and also to make such rules and regulations having the force and effect of law as may be necessary for carrying out the provisions of the act itself.

Among other things, the new law prohibits the shipment into Florida of honeybees unless in combless packages unless they are accompanied by an official certificate of inspection of the State Apiary Inspector or State Entomologist of the State or country from which shipped. This provision of the law will be rigidly enforced, as the Plant Board has a very effective quarantine system and has quarantine inspectors so located that practically every express, freight and water shipment entering Florida comes under the eye of one or more inspectors. It is therefore practically an impossibility for bees to be shipped into this State without a certificate of inspection attached without their being detected by our inspector. There have been similar laws in other States, and sometimes the beekeepers have not taken them seriously. However, Florida is comparatively free from infectious diseases of bees, and the present law is going to be enforced to the letter. It is the desire of the State Plant Board of Florida to co-operate with

beekeepers everywhere and at all times for everything looking to the betterment of the beekeeping industry. However, the doors of Florida are no longer wide open for the entry of diseased bees from Northern States, and beekeepers who undertake to ship their bees into Florida without a certificate of inspection attached will soon find that the law is being enforced.

WILMON NEWELL,
Plant Commissioner.

Maryland State Beekeepers' Association

A very successful field meeting of the Maryland State Beekeepers' Association was held at the home and apiary of Mr. Walter E. Atkinson, of Glyndon, Md., July 26. Forty-five members were in attendance. The meeting was addressed by Mr. L. H. Vanwormer, of College Park, Md.; Mr. Sam Cushman, of Baltimore, Md., formerly a Rhode Island beekeeper; President, Dr. J. R. Abercrombie, of Baltimore, Md., and by County Agent J. F. Hudson, of Baltimore County. Those present had the opportunity of seeing an apiary of forty-five colonies kept in double-walled hives, and observing Mr. Atkinson's methods of producing both comb and extracted honey, as well as the complete and extensive honey-house and appliances. Definite steps were taken towards the co-operative buying of bee supplies. The Association voted to purchase its supplies co-operatively, and the purchase of approximately \$2,000 worth of supplies was secured at the meeting.

In addition to the business part of the session, Mrs. Atkinson furnished most acceptable and delightful refreshments at the close of the field meeting.

ERNEST N. CORY,
Sec.-Treas.

Annual Meeting

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in Memorial Hall, in Rockford, Ill., on Tuesday, October 21, 1919. All interested in bees are invited to attend.

B. KENNEDY, Sec.

Mississippi Bees Buzzing

County Agents of Mississippi to the number of 250 gathered at the Agricultural College in annual meeting, pledged themselves to boost beekeeping, after hearing Kenneth Hawkins, of the G. B. Lewis Company explain the advantages of beekeeping in boll weevil districts. R. L. Wilson, of the Extension Division of the State University, also talked to the agents and a demonstration exhibit of bee supplies was shown at the meeting. A number of bee clubs have been formed in the State and

several County Agents are already aiding beekeepers in marketing co-operatively. Ten counties will have a club bee exhibit at fairs this fall.

East Tennessee Meet

The first meeting of the newly organized East Tennessee Beekeepers' Association was held July 29 at the apiary of Curd Walker, Jellico. The attendance was excellent and the weather ideal, which permitted demonstrations in transferring, queen-rearing and extracting, which are destined to bring about great results. In the afternoon the program was devoted to a round table of questions and answers, led by the President of the Association, Prof. G. M. Bentley, Entomologist, University of Tennessee, Knoxville. Another field meet is to be held this fall.

Cayuga County Beekeepers Meet

The Cayuga County Beekeepers' Society held a basket picnic at the home of Mr. and Mrs. Geo. L. Ferris, of Five Corners, N. Y., on Tuesday, August 26, 1919. Between 60 and 70 beekeepers attended the picnic, which was made interesting by the presence of Prof. Rea, of the New York State College of Agriculture, Ithaca, N. Y., and Mr. C. E. Wetherby, Manager Cayuga County Farm Bureau, the former speaking principally upon brood diseases and their treatment, the latter dwelling mainly upon formulating plans for county extension work for the coming year. A pleasant time was enjoyed by all.

F. D. LAMKIN, Sec.

High Priced Honey

When Detective Britton was killed in the performance of his duty at Sioux City, Iowa, recently, the Tribune started a subscription for his family. Dr. Bonney sent a gallon can of honey, which was sold at auction for \$150 to swell the fund. It seems that the purchaser donated the honey to the Boys and Girls Home, so that, as Manager Kelly of the Tribune says, "Honey rarely ever sold so high, nor served so many people."

Advance of Prices

O. L. Hershisser called attention to the fact at the New York field meeting, that bee supplies have not advanced as much as other goods. Some beekeepers are inclined to think that bee supplies have advanced unreasonably in price and more in proportion than most other articles. The following comparison of other articles, with the per cent of increase based on the prices of each in 1913 and in 1919, are interesting: Wheat, 166 per cent; hogs, 123 per cent; sugar, 107 per cent; coal, 82 per cent; cotton yarns, 81 per cent; leather, 74 per cent; petroleum, 63 per cent; forest products (including beehives), 49 per cent; illuminating oil, 47 per cent; coffee, Rio, 44 per cent; lead, pig, 19 per cent. These figures are accurate and authoritative, having been furnished the parties interested by the Federal Reserve Board under date of May 1, 1919.

K. H.

Mr. Kindig's Work

The "Beekeepers' Letters" by B. F. Kindig, published by the Department of Entomology of the Michigan Agricultural College, are worthy of commendation. We have before us No. 7, published in August. It is a 5-page letter and full of good things. Mr. Kindig is a worker. Beekeepers of Michigan should secure all that he writes.

Bartholomew to Florida

C. E. Bartholomew, formerly of the Iowa Agricultural College, and later a member of the field force of the Bureau of Entomology, has been appointed assistant to the Plant Commissioner of Florida, in Bee Disease Control, with headquarters at Gainesville.

New Law in Wisconsin

Wisconsin has a new law for disease control. One of the provisions prohibits the sale or removal of bees or equipment without a permit from the Inspector of Apiaries. It thus becomes impossible for Wisconsin beekeepers, even though no disease is present, to ship any old combs or used equipment without such permit. We would caution beekeepers to comply with the law and thus avoid possible trouble. A strict interpretation of the law would prevent the beekeeper from moving an apiary from one location to another without first communicating with the inspector. Wisconsin beekeepers will do well to write to the State Entomologist at Madison and get his interpretation of the law on this point.

Pasting Labels on Tin

A good way is by the use of Turlington's Balsam, otherwise tincture of benzoin compound. Daub tin to be covered with label with a little of the tincture, allow it to dry, and label will stick to it ever after. The writer used it for a good many years and it worked.

NAHMAN ROSENSWEET,
Arden, Dela.

CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted for three cents per word, with no discounts. No classified advertisement accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

BEEES AND QUEENS

FINEST THREE-BANDED Italian queens for \$1.25, 6 for \$7. J. W. Romberger, Apiarist, 3113 Locust St., St. Joseph, Mo.

FOR SALE—120 colonies of golden and 3-band Italian bees, complete queen-rearing and mating outfit; enough customers for the output of three hundred hive apiary; good honey country; good location. Price, terms and details a matter of correspondence. Address, J. W., care American Bee Journal.

THE AMERICAN BEE JOURNAL is prepared to furnish printing for beekeepers. High quality, prompt service and satisfaction. Our shop is in charge of a man who specializes in printing for the honey producer. Send for our catalog of honey labels, stationery, etc. American Bee Journal, Hamilton, Ill.

FOR SALE—300 colonies of bees, all in first-class condition for winter, with ample stores, in new Woodman Protection hives; no disease; must be sold by November 1. Reason for selling, age and poor health. Write for particulars. Bell E. Berryman, Central City, Merrick Co., Neb.

QUEENS AND BEES—This fall is proper time to replace all queens 2 years old, as well as the falling ones. Circular free. See large add elsewhere.

Nueces County Apiaries,
E. B. Ault, Prop., Calallen, Texas.

FOR SALE—Italian queens, from best disease-resisting stock, mailed as soon as hatched. Directions for introducing with every order. Price, April to October, in large or small lots, 60c each. James McKee, Riverside, Calif.

FOR SALE—100 colonies of bees, most all in new hives with Hoffman frames. Plenty of stores. Address James Johnson, Box 265, Pocahontas, Ark.

FOR SALE—Leather colored Italian queens, tested, June 1, \$1.50; untested, \$1.25; \$13 a dozen. A. W. Yates, 15 Chapman St., Hartford, Conn.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40; 100, \$75. H. G. Dunn, The Willows, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, \$1; mated, \$3. C. W. Phelps & Son, 8 Wilcox St., Binghamton, N. Y.

GOLDENS that are true to name. Untested queens, 1, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40; 100, \$75. Garden City Apiaries, San Jose, Calif.

LEATHER and all dark colored Italian queens, when we have them, mated, \$1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W. Phelps & Son, No. 3 Wilcox St., Binghamton, N. Y.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1. J. F. Diemer, Liberty, Mo.

BEEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 14th 84 Cortland St., New York City.

FOR SALE—Three-banded Italian queens; untested queen \$1, six, \$5.50; twelve, \$10. Tested queens \$2 each. Robert B. Spicer, Wharton, N. J.

FOR SALE—Golden queens second to none, for honey gathering and gentleness are unsurpassed; untested \$2, tested \$5 to \$10. E. V. Marston, Roxbury, Va.

FOR SALE—J. B. Brockwell's golden queens, untested \$12 per doz., \$7 for 6, \$1.50 each; 3-frame nuclei \$3, with queen. Tested queens \$3 each. J. B. Brockwell, Barnetts, Va.

"SHE SUITS ME" Italian queens, \$1.15 each, from May 15 to October 15; 10 or more, \$1 each. Allen Latham, Norwichtown, Conn.

FOR SALE—Baby swarms, three frames and queen, \$5. J. A. Dougherty, Box 66, California, Hamilton Co., Ohio.

FOR SALE—Italian bees and queens (the kind that fill from 2 to 6 supers). Bees, \$12 a colony; queens, \$3 each, 6 for \$11. Queens go by mail, bees by express. Order direct from this ad. Miss Lulu Goodwin, Mankato, Minn.

HONEY AND BEESWAX

FOR SALE—Choice clover and buckwheat honey in 60-lb. cans, 2 in case; also 2 160-lb. kegs. Clover honey, 25c; 20c for buckwheat, f. o. b., cash with order. Large sample, 15c to apply on order. Edw. A. Reddout, Lysander, N. Y.

FOR SALE—Extracted clover and buckwheat honey. Let us quote you. The Forest Honey Co., 2823 S. Woodstock St., Philadelphia, Pa.

WANTED—White clover or light extracted honey. Send sample; state how honey is put up and lowest cash price delivered at Monroe; also buy beeswax. E. B. Rosa, Monroe, Wis.

WANTED—Comb and extracted honey; send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter. D. A. Davis, 216 Greenwood, Birmingham, Mich.

WE BUY HONEY AND BEESWAX—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section and sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Chas. Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE—5,000 pounds clover extracted honey, new crop, two 60-lb. cans to case, 25c per pound. J. P. Goodwin, South Sioux City, Neb.

WANTED—Honey, in light and amber grades. Send sample, stating quantity, how put up, and lowest cash price delivered in Spring Valley. Ed. Swenson, Spring Valley, Minn.

FOR SALE—15,000 pounds of fine clover and basswood honey. The best offer takes it if satisfactory. Chester E. Keister, Clarno, Wis.

FOR SALE—New crop clover extracted honey, two 60-pound cans to case, 25c per pound. H. G. Quirin, Bellevue, Ohio.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co., 6A12t 173 S. Water St. Chicago, Ill.

WANTED—Shipments of old comb and capings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

FOR SALE

GOLDEN DAWN APIARIES for sale, with or without location; 140 colonies; 95 per cent. up-to-date hives, painted 2 and 3 times. Combs drawn on full sheets foundation and wired; 8 and 10-frame. Also quantity drawn comb, about 100 extra 10-frame hives with full sheets foundation wired (new). Some shallow extracting supers with comb and foundation (also new), and 350 section supers, mostly new. A good, clean lot for someone who can use it. Going to the coast and want to dispose of the above in the next thirty days. Golden Dawn Apiaries, Yankton, S. D.

FOR SALE—Ten 10-frame Protection hives, complete, each \$3; 10 empty standard hives, each \$1; 30 plain-section supers complete, each \$1. M. Ullmann, Box 395, Highland Park, Ill.

FOR SALE—200 new 10-frame cross style, reversible bottom-boards 2 50 cents each; 200 new flat reversible covers at 60 cents each; 5,000 all-wood extracting frames at \$5 per 100; 100 new Alexander feeders at 20 cents each; 150 Boardman feeders without cap or jar, at 12 cents each. All above goods are factory made and have never been used. I also have some 8 and 10-frame hives complete which space does not permit to mention here. Write M. E. Eggers, Eau Claire, Wis.

FOR SALE—My 5-acre piece of land, with modern 8-room house, good barn, chicken coop, bee house and woodshed; all in good condition. Reason for selling, going on a farm. Address Theo. L. Thompson, Spring Valley, Wis., Rt. 4, Box 7a.

BLACK SIBERIAN HARE—World's greatest rabbit for fur and meat. Write for information. Siberian Fur Farm, Hamilton, Canada.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, \$1. American Bee Journal, Hamilton, Ill.

FOR SALE—"Superior" Foundation (Wend process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

FOR SALE—Blue vine seed, or climbing milkweed (*Genolubus Laevis*), 6 pods containing innumerable seed mailed to any address upon receipt of \$1.

S. H. Burton, Washington, Ind.

FOR SALE—8 acres land, 300 colonies bees; land in high state of cultivation, growing second crop now; price per acre, \$200. Apiary in three yards; production highest average in 10 years, 96 lbs. extracted honey, lowest 23 lbs. per colony.

S. Mason, Hatch, N. M.

FOR SALE OR TRADE—Model 10 Royal standard typewriter, visible; like new; cash \$50. Cost \$100. E. A. Harris, Albany, Ala.

WANTED

WANTED—Bees in Jumbo hives; also Jumbo frames with drawn combs. E. A. Newman, 4205 Eighth St., Washington, D. C.

WANTED—Comb and extracted honey, light and amber and clover grades.

Robert Gilkinson,
1339 Dewey Ave., Rochester, N. Y.

WANTED—Man for comb-honey production; 12 months' work. State wages expected and experience. Sunnyside Apiaries, Fromberg, Mont.

WANTED—Position with bee supply manufacturer or southern or California bee specialist, by technical graduate of Toronto University, 29 years of age, married, 2 years' experience in practical beekeeping and the manufacture of beekeepers' supplies. Address, care of American Bee Journal.

WANTED—Cowan honey extractor. For sale—Winchester shotgun, new, 16-gauge.

James Wheeler, Maroa, Ill.

WANTED—Your old combs, cappings or slumgum to render into beeswax by our high steam pressure wax presses.

Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

WANTED—I have a fine location in California and want a man to associate himself with me in the beekeeping business. I have the stock of bees and equipment here in Arizona; wish to ship all to a certain point in California this fall; have an attractive proposition to offer the right man that can invest in half interest in what I have. Tell your story in first letter.

J. B. Douglas, Box 1085, Tucson, Ariz.

SUPPLIES

FOR SALE—Cowan rapid, reversible extractor, practically new, \$23.

L. Clark, Winona, Minn.

FOR SALE—Novice 2-frame extractor, used only one year; like new; in original crate. Price, \$15.

Merton Church,
Highland Park, Ill.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati; terms cash with order.

C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

MY FEEDER—Make 'em yourself. I tell you how. Won't rust. Sample and tool postpaid, 24c.

Dr. Bonney, Buck Grove, Ia.

FOR SALE—Beehives and supers. Address Thos. Cordner, Rt. 7, Sparta, Wis.

SPECIAL—Best No. 1 Sections, per crate of 500, \$3.50; other goods in proportion. Price list free. H. S. Doby & Son, St. Anne, Ill.

MISCELLANEOUS

MR. BEEKEEPER—If you want a good queen-rearing and honey location in Texas, write me. Farmer Shaw, Lovelady, Texas.

FOR SALE—California Wonder Corn for seed. The greatest producing corn known. The yield is twice to three times that of ordinary corn. Order now for November and December delivery. Price, 10 lbs., \$3.50.

James McKee, Riverside, Calif.

I WANT to trade honey for a good-toned guitar. Must be in good order.

Dr. A. F. Bonney, Buck Grove, Iowa.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey producer." It will help you to produce more honey, and then will help you to sell it at the best price. Our "Service Department" has saved beekeepers hundreds of dollars in purchasing supplies. Send for a sample copy and let's get acquainted. We make liberal clubbing offers. Send us \$1.75 and we will send you the Domestic and the American Bee Journal both for a year. Address all orders to The Domestic Beekeeper, Almont, Mich.

WANTED—We have installed a steam process for rendering old combs, cappings and slumgum, and want you to give same a trial. Write us for terms. We pay market price for the wax rendered or will make same into Miller's California Foundation. Send for our catalog.

Miller Box Mfg. Co.,

201 N. Ave. 18, Los Angeles, Calif.

ENGLISHMAN, Ex-officer of British army, son of prominent British beekeeper, life-time experience, desires managership of apiary in California. First-class education (diplomas), 22 years of age, strong, virile. Willing to take over next spring. First-class references. Write, stating salary, "P," American Bee Journal office, Hamilton, Ill.

FOR RENT—My 400-acre woodland and pasture farm in Berkshire mountains of Massachusetts. Fifteen lakes within ten miles. Substantial old farm-house in good repair, fitted with plumbing. Three large barns. Locality suited to dairy, bees and small fruit. Entire product can be sold on farm at retail prices. On main tourist route through Massachusetts. Rent can be partially paid by work developing farm. Only thoroughly responsible, long term tenant will be considered.

Arthur E. Morgan, Englewood, Ohio.

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We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading.

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LUTZ & STAHL, Keokuk, Iowa

Read "THE BEEKEEPER"

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The Horticultural Publishing Co., Ltd., Peterboro, Ontario

TEXAS BRED QUEENS

THE SUCCESS OF BEEKEEPING DEPENDS ON GOOD YOUNG QUEENS

We will have several thousand for sale this Fall, also booking orders for next year. Send for *Free Circular* giving prices, etc., for Spring delivery. We will guarantee shipments to be made on time; circular explains. September and October is considered the best time for southern beekeepers to require.

	1	6	12	50
Untested	\$1.25	\$6.50	\$11.50	\$40.00
Select Untested	1.50	7.50	13.50	48.00
Tested	2.00	10.50	18.50	
Select Tested	2.75	15.00	27.00	
One pound package of bees	\$2.40—25 or more \$2.16 ea.			
Two pound package of bees	4.25—25 or more 3.83 ea.			
Three pound package of bees	6.25—25 or more 5.62 ea.			

Prices of regular Nuclei, also Nuclei on ALUMINUM COMBS, given in circular. We have shipped for several seasons thousands of pounds of bees all over the United States and Canada. Add price of Queen when ordering bees.

NUECES COUNTY APIARIES E. B. AULT, Calallen, Texas Prop.

Crop and Market Report

Compiled by M. G. Dadant

For our October number we asked the following questions of reporters:

1. How is the final crop, compared to last year, and what is the average per colony?
2. How is honey selling?
3. What price is being offered producers?
4. What price do you expect to realize?

THE FINAL CROP

The crop will be a little short of last year, though conditions have improved since our last report. The main reason for shortage will be the very small crop of white clover locations, and short crops in Wyoming, Utah, and especially in California.

The New England States report from a failure to 75 per cent of last year, while the rest of the East will not run over 75 per cent of the 1918 crop. The same is true of the State of Ohio, while Indiana and Illinois, with eastern Iowa, have practically a complete failure, except where there is a fall flow. Here the crop will be good. Western Iowa and South Dakota report a very good crop, while with Minnesota it is practically a failure. The largest beekeeper there will have an average of 10 lbs. per colony.

Michigan will have about half of last year, while Wisconsin, with a failure last year, will be improved.

Florida and Georgia will equal last year, while the balance of the South will not be nearly as good as in 1918; Texas reports from 150 to 500 per cent more honey than last year. Idaho and Montana are short, while Colorado will about hold its own with 1918. Washington and Oregon will not be up to normal, and the coast, as reported before, will not have more than 50 per cent of 1918.

DEMAND FOR HONEY

It is yet early for the demand to stiffen, but we are inclined to believe that it is better than the average condition for this time of the year as it was before the war. One big jobber states that the demand is getting good from soft drink and other manufacturers who used honey last year and are again forced to do so from the sugar shortage.

PRICES PAID PRODUCERS

One report comes in from the South of an offer of 8 to 10 cents for average extracted. The bulk of the offers, however, are in the neighborhood of 15 cents for amber and 17 to 19 cents for white, with many purchases of white honey at 20 cents. Comb honey would sell readily at \$5 per case, and we are surprised to note that one smaller Colorado Association is holding at \$5.50 without a buyer, nor do they report buyers at 17½ cents for extracted, but they take a relatively high freight rate. In the markets comb is bringing over \$6 per case. West Indian honey is wholesaling for \$1.30 to \$1.60 per gallon.

PRICES ASKED BY PRODUCERS

One could probably obtain all the honey desired by offering the beekeepers 20 cents for white extracted f. o. b. their station. In fact, white orange is quoted at this with a cent less for white sweet clover f. o. b. California common points. Some little is being offered at 18 cents. The market seems to be stabilizing around 20 cents for best white extracted, and we will be surprised if the price goes much higher, though not a few beekeepers are holding for 25 cents f. o. b. their station.

Texas honey sells for 17 to 19 cents.

One large buyer of honey stated that he was offering 20 cents for white and 17 cents for amber, but that many were asking 25 cents. He stated that at this price he would buy only as fast as needed, since he was afraid of a future decline.

Comb honey prices are too low. With the present price of extracted, comb honey should not sell under \$8.50 per case, yet we see no indication on the part of the producer to ask such a price, the highest I have seen being \$7.50, and that for sales direct to consumer.

The Montana Association is advising its members to sell at the following prices: Comb honey, wholesale, \$6.50 per case, retail \$7 per case. Extracted honey, retail, 5-lbs., \$1.35, 10-lbs., \$2.65, 60-lbs., at 23½ cents per pound. Jobbing at 25 cents.

They argue that the jobber who has last year's stock left will have established a high price market and will, in time, be ready to buy at the higher price of 25 cents, which he paid last year. We know of one or two jobbers who are unloading their last year's honey at a loss. Yet the market may stiffen to the higher figure.



PAT. JULY 30, 1918

C.O. BRUNO NAILING DEVICE

Made for the Huffman Brood Frames. A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE \$7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO

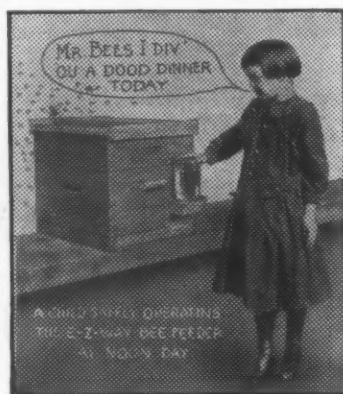
1413 South West Street, Rockford, Illinois

Don't stop advertising. because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.



Price of 1,000 gummed, 35c.

American Bee Journal Hamilton, Illinois



THE E-Z-WAY BEE FEEDER

Will Save Your Time and Save Your Bees and will Satisfy an Old Established Need

A few pounds of sugar syrup will save your weak colonies; they will be worth many dollars to you next season. Don't lose one, when it is so E-Z to feed and save them with the E-Z-WAY BEE FEEDER. We send attachments for 3 hives, instructions for using, feeding and making the syrup with each Feeder. The winter will soon be here; don't delay; order at once, at our risk, 30 days' trial; money back if not satisfied. Price \$1, or six for \$5, postpaid. Remit by money order, cash or stamps, to

THE HOLDEN MFG. CO.
CLARKSBURG, W. VA.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 66-page catalog. Our prices will interest you.

The Colorado Honey-Producers' Association

1424 Market Street, Denver, Colo.

ATTRACTIVE CLOTHES

Do not make the man, but they add greatly to his appearance.

Just so with your honey. It must have quality, but should have a neat package and an attractive label.

We can furnish the label. In many sizes and shapes suitable to fit any container.

Write for our new price list of honey labels and stationery.

American Bee Journal, Hamilton, Ills.

THE DISCOUNT THAT COUNTS

In ordering your next year's supply, remember we offer a 5% cash discount this month. The opportunity is too good to miss. You can stock up the depleted list better now than any other time.

OUR GUARANTEE

Our guarantee means that you get only standard goods. It means that you will be refunded in case you are not satisfied. Our greatest advertisement are the satisfied **Kretchmer** boosters.

WE SAVE YOU FREIGHT

Council Bluffs is centrally located so that your order leaves here by the shortest direct route, saving you time and money.

OUR AIM IS SERVICE

That is why we ship orders so quickly, and why we welcome inquiries. That's why we pay particular attention to the many Bee-Keeper's problems. Unusual Swarming? Trouble in Requeening? Bees Ready for Winter? How to Winter Them? What and When to Feed? Our specialist will be happy to give your case **particular and individual** attention.

SEND FOR THE
CATALOG



REMEMBER THE
CASH DISCOUNT

Watch this space for interesting developments within
the next two months

KRETCHMER MFG. CO., Council Bluffs, Iowa

If you had been on the Arizona



HERE she comes, homeward bound, with "a bone in her teeth," and a record for looking into many strange ports in six short months.

If you had been one of her proud sailors you would have left New York City in January, been at Guantanamo, Cuba, in February, gone ashore at Port of Spain, Trinidad, in March and stopped at Brest, France, in April to bring the President home. In May the Arizona swung at her anchor in the harbor of Smyrna, Turkey. In June she rested under the shadow of Gibraltar and in July she was back in New York harbor.

Her crew boasts that no millionaire tourist ever globe-trotted like this. There was one period of four weeks in which the crew saw the coasts of North America, South America, Europe, Asia and Africa.

An enlistment in the navy

gives you a chance at the education of travel. Your mind is quickened by contact with new people, new places, new ways of doing things.

Pay begins the day you join. On board ship a man is always learning. There is work to be done and he is taught to do it well. Trade schools develop skill, industry and business ability. Work and play are planned by experts. Thirty days furlough each year with full pay. The food is fine. A full outfit of clothing is provided free. Promotion is unlimited for men of brains. You can enlist for two years and come out broader, stronger, abler. "The Navy made a man of me" is an expression often heard.

Apply at any recruiting station if you are over 17. There you will get full information. If you can't find the recruiting station, ask your Postmaster. He knows.

Shove off! Join the U. S. Navy

TENNESSEE-BRED QUEENS

Forty-Seven Years' Experience in Queen-Rearing

Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	\$9.00	\$ 8.50	\$15.00	\$1.50	\$ 7.50	\$12.50	\$1.95	\$ 6.50	\$11.50
Select Untested ..	2.95	9.50	18.00	1.75	9.00	16.00	1.50	7.50	13.50
Tested	3.00	16.50	30.00	2.50	19.00	29.00	2.00	10.50	18.50
Select Tested	2.50	19.50	35.00	2.00	16.50	30.00	2.75	15.00	27.00

Capacity of yard, 5,000 queens a year.

Select queen, tested for breeding, \$5.

The very best queen, tested for breeding, \$10.

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

JOHN M. DAVIS, Spring Hill, Tenn.

EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

"I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B

WESTERN HONEY PRODUCERS

1929-1931 FOURTH STREET
SIOUX CITY, IOWA

BEE SUPPLIES

☞ We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

☞ A trial order will convince you that our prices and goods are right.

Send Us Your Inquiries

A. H. RUSCH & SON CO.

REEDSVILLE, WIS.

BEEES

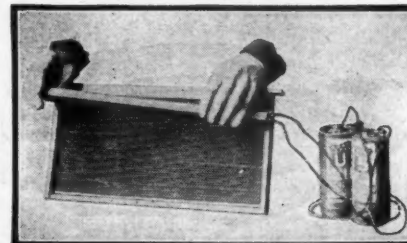
We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, \$2; untested, \$1.50. Price list free

I. J. STRINGHAM, Glen Cove, N. Y.
NASSAU, CO.

CLOSING OUT SALE

An opportunity to enter another line of business has presented itself and I have decided to retire from the queen and bee business. I have probably the best outfit in Louisiana for the queen and package business, located in 3 yards in Avoyelles Parish, the best known bee section in the State. We have a live Parish Beekeepers' Association, and a State Association has recently been organized. I offer 400 colonies Italian bees, 8-frame, 2 stories, first class. Portable power extracting outfit, engine and power saw, together with supplies of all kinds on hand. This is complete and going business, profitable and ready to work. Best quality, and the outfit represents 5 years of careful painstaking effort. Business now on book for spring delivery. Delightful climate. Price \$3,000. I am solvent; no forced sale. Correspondence only with those who mean business is desired. No lease or share deal considered.

J. F. ARCHDEKIN,
Big Bend, La.



ELECTRIC IMBEDDER

Price without Batteries \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market.

For sale by all bee supply dealers

Dadant & Sons, Manufacturers
HAMILTON, ILL.

**PORTER BEE
ESCAPE
SAVES
HONEY
TIME
MONEY**



For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lewistown, Illinois, U. S. A.
(Please mention Am. Bee Journal when writing)

Established 1885

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montg. Co., Mo.

IMPORTANT ANNOUNCEMENT

Our New Steam Wax Rendering Department will be ready for business by September 8. We will render your old combs and cappings at the regular terms, which are as follows:

Terms for Rendering Either for Cash or on Shares

OLD COMBS

	Cash Terms Per Pound	Share Terms Your Share	Our Share
On 100 lbs. or more beeswax secured	\$0.07	80 per cent	20 per cent
On 25 to 100 lbs. beeswax secured	.09	75 per cent	25 per cent
On less than 25 lbs. beeswax secured	.14	60 per cent	40 per cent

CAPPINGS

	Cash Terms Per Pound	Share Terms Your Share	Our Share
On 100 lbs. or more beeswax secured	.04	90 per cent	10 per cent
On 25 to 100 lbs. beeswax secured	.07	80 per cent	20 per cent
On less than 25 lbs. beeswax secured	.09	75 per cent	25 per cent

Freight or express charges will be charged to the shipper.

For your share of the beeswax we will pay you our best cash price, quoted on application any time, or our trade price to apply on bee supplies you may need.

Should you be in need of comb foundation, your share of the beeswax may be worked into Foundation at our regular working prices. Send for special price list.

Also, we expect to begin handling honey by October 1, as our new equipment will be ready by this time.

While at the New York State Fair arrange to make our exhibit your headquarters, as all beekeepers aim to do. Wednesday and Thursday are Beekeepers' Special Days.

THE DEROY TAYLOR CO., Newark, Wayne Co., New York



Seamless Paper Containers

THE MOST PRACTICAL AND ECONOMICAL CONTAINER FOR

Honey

Superior to any other single service container manufactured

Write for particulars and prices

THE SANITARY PAPER BOTTLE CO. Sandusky, Ohio
415 Water St.

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. 25 years a Queen-breeder

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested	\$1.50	\$ 8.00	\$14.00	\$1.00	\$ 5.50	\$10
Tested	2.00	10.00	18.00	1.50	8.00	14
Select tested	2.50	14.00	25.00	2.00	10.00	18

BREEDERS—The cream from our entire stock of outyards, \$5 each. Usually we can send all queens promptly after June 10th.

Breeders, select tested and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

H. G. QUIRIN, Bellevue, O.

Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed \$5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

	Nov. 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$2 00	\$8 50	\$15 00	\$1 50	\$7 50	\$13 50	\$1 25	\$6 50	\$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	16 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	27 00

Safe arrival, purity of mating and satisfaction guaranteed

No Nuclei or Bees by Pound

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

BEN G. DAVIS : : Spring Hill, Tenn.

BEE SUPPLIES

Let Us Figure With You

Get our discounts before buying
Largest stock in South West.

C. C. CLEMONS BEE SUPPLY COMPANY
142 Grand Ave., Kansas City, Mo.

A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, \$1, or clubbed with the American Bee Journal, one year for \$1.75.

American Bee Journal, Hamilton, Ill.

QUEENS**OCTOBER DELIVERY****QUEENS****GOLDEN AND THREE BANDED QUEENS**

The demand for our Famous Disease Resisting, Honey Gathering Hustlers is greater than ever before. Untested, 90c; 50 or more, 75c each. Select untested, \$1; 50 or more, 90c each. Tested, \$1.75; select tested, \$2. Virgins, 40c. All Queens by return mail, or soon.

BOOK YOUR ORDER NOW

M. C. BERRY & COMPANY, Hayneville, Ala.

MARSHFIELD GOODS**BEEKEEPERS**

We manufacture millions of sections every year that are as good as the best. The **cheapest** for the **quality**; **best** for the price. If you buy them once, you will buy again.

We also manufacture hives, brood-frames, section holders and shipping cases.

Our Catalog is free for the asking

MARSHFIELD MFG. CO., Marshfield, Wis.

Shipping Cases for Comb Honey

It is an acknowledged fact that comb honey put up in attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

TIN CONTAINERS FOR EXTRACTED HONEY

We have a good stock of—

60 lb. Square Cans
12 lb. Square Cans
5 and 10 lb. Round Friction Top Pails

We also carry in stock a complete line of all other beekeepers' supplies

THE LOTZ 1 PIECE SECTION

The kind that does not break in folding is manufactured by us

Our 1919 catalogue and price list mailed to you free upon request.

August Lotz Company
Boyd, Wisconsin



CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames

of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

Will take your Beeswax in Trade at Highest Market Price

CHAS. MONDENG

159 Cedar Lake Road

MINNEAPOLIS, MINN.

BARNES' Foot-Power Machinery

Read what J. L. Parent, of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter 60 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

W. F. & JOHN BARNES
905 Ruby St., ROCKFORD, ILLINOIS

**THIS IS THE
"SIGN" ON EACH
CYPRESS BOARD**



**DON'T GUESS
MAKE SURE.
'HAVE A LOOK'**



For all uses that invite decay (for instance,
bottoms) demand

"ALL-HEART"

"Tidewater" Cypress

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

**THIS FACT IS YOUR PROTECTION.
ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS**



SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's

If he hasn't it, LET US KNOW

HONEY

WANTED

HONEY

Write us what you have to offer in extracted or comb. If comb state how packed, graded and quantity. If extracted, state how put up, mail sample and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. Weber & Company

2146 Central Avenue

CINCINNATI, OHIO

**HONEY, HONEY,
HONEY**

We shall be in the market for any quantity, both comb and extracted. Mail sample of extracted and state price asked in first letter.

Beeswax always in demand. Cash or in trade.

**"GRIGGS SAVES YOU FREIGHT"
TOLEDO**

June is here and the big White Honey Flow with it. Don't get short of sections and foundation, the season promises to be good.

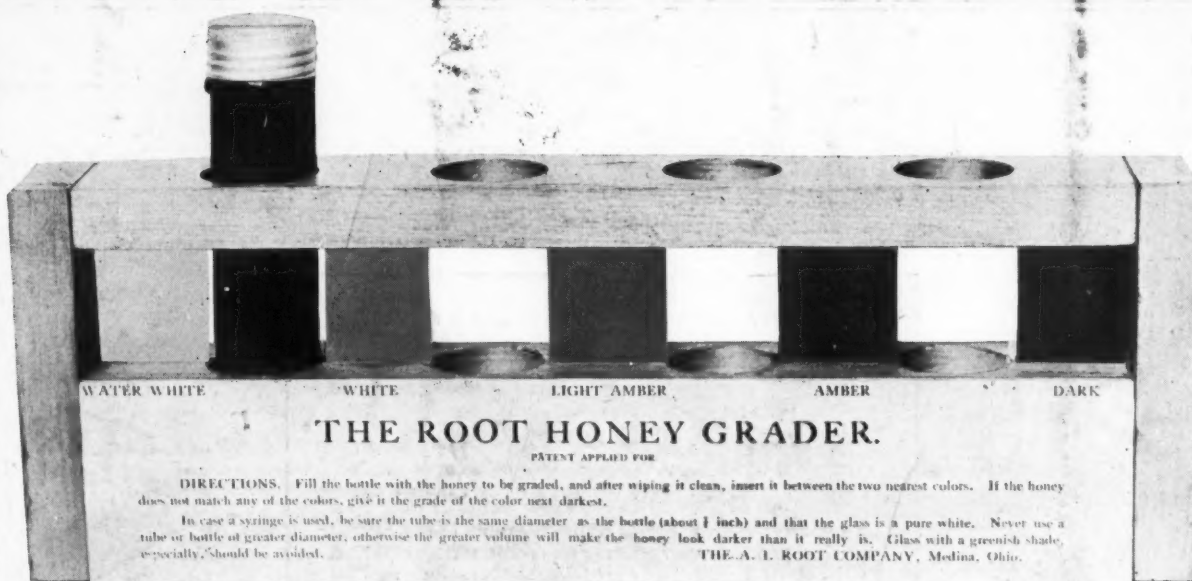
Honey Cans and Cases

Order these early, a limited number of second hand cans on hand at 75c per case

GRIGGS BROTHERS CO.

DEPT. 24

TOLEDO, OHIO



A STANDARD HONEY GRADER

The honey producer needs—and has long needed—a standard honey grader by the use of which he could absolutely determine the grade of his honey as to color, whether he lives in California or Maine. There has heretofore been no standard. The producer of honey and the buyer of honey have each had in his own mind his own standard. Accordingly they have differed and haggled, resulting in confusion and misunderstanding and sometimes in bad feeling. This condition has been a positive detriment to the business everywhere.

Recognizing the great need of a standard honey grader, so that honey could be graded just as grain is accurately graded in all markets the same, experts in the A. I. Root Company set to work on the problem several years ago. Experiments of every kind in the testing of colors and color materials was begun. A large number of experts in the honey industry thruout the country were consulted as to the standard of shades of honey to be adopted and the number of such shades to be made standard. Samples of shades were submitted to these various experts and to many large honey producers, till a practically unanimous agreement was reached in adopting shades of "water white," "white," "light amber," "amber" and "dark." Only after comparing the colors of various honeys from every part of America were these shades adopted as standard.

Experiments with colored liquids in small containers and many combinations of colored glass were made. The problems and difficulties in securing exact shades of colors and permanency of such colors were many. Simplicity, practicability and permanency as well as definiteness of color were kept foremost in mind. It was finally determined that colored glass and only colored glass could meet the never-fading and never-changing requirements in furnishing standard honey colors. Paint, colored celluloid, colored liquids, etc., all change color when long subjected to light.

The glass-makers of America and Europe were then consulted, and asked to match in glass the shades of honey agreed upon as standard. No American glass-maker could meet the requirements; but a glass-maker of France was found who could—and did, altho at very large expense.

THE ROOT HONEY-GRADER

So today, after years of experimenting and advising, we are prepared to furnish the honey producers of America a standard honey-grader—simple, convenient and certain. It has already been adopted as standard by the California Honey Producers' Co-operative Exchange and by Airline. The accompanying illustration shows at a glance what it is and how it is used. The five standard honey shades are reproduced in small glass plates, which are inserted in a wooden frame, provided with round cut holes beside each glass plate for the insertion of a small glass container which is standardized size. A sample of the honey to be graded is put in this container, which then may be inserted in any one of the holes between the two grade colors nearest matching it, and the grade is thus determined. We shall be glad to furnish full information to all producers of honey interested in this truly "long-felt want."

(An early-order discount of 5 per cent on all beekeepers' supplies ordered in October.)

THE A. I. ROOT CO.
MEDINA, OHIO